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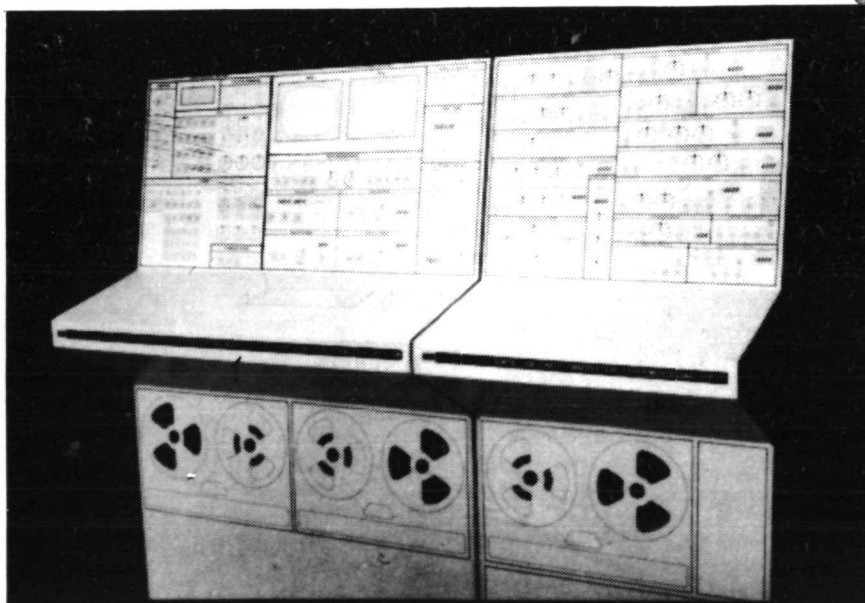
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# DEVELOPMENT OF FLIGHT EXPERIMENT WORK PERFORMANCE AND WORKSTATION INTERFACE REQUIREMENTS

FINAL REPORT  
CONTRACT NAS8-28359

AUGUST 31, 1973

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PART II



URS/MATRIX COMPANY MAN SYSTEMS DIVISION 4702 GOVERNORS DRIVE HUNTSVILLE, ALABAMA 35805 (205) 837-4750



DEVELOPMENT OF FLIGHT EXPERIMENT  
WORK PERFORMANCE AND  
WORKSTATION INTERFACE REQUIREMENTS

CONTRACT NAS8-28359

FINAL REPORT - PART II

APPENDIX H

AUGUST 31, 1973

PREPARED FOR:

GEORGE C. MARSHALL SPACE FLIGHT CENTER  
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION  
HUNTSVILLE, ALABAMA 35812

PRL: 415

PREPARED BY:

G. RICHARD HATTERICK

URS/MATRIX COMPANY  
MAN SYSTEMS DIVISION  
4702 GOVERNORS DRIVE, WEST  
HUNTSVILLE, ALABAMA 35805

## ACKNOWLEDGEMENTS

The NASA Technical Director for this study was Mr. Arthur W. Galzerano, Sortie Lab Task Team, Science & Engineering, Marshall Space Flight Center, Huntsville, Alabama. Valuable assistance in obtaining information and data and in providing direction to the progress of the study was provided by Mr. Roy C. Currie and Mr. Stanley Johns, NASA Marshall Space Flight Center, and Dr. Stanley Deutsch, Director, Bioengineering Division, Office of Life Sciences, NASA Headquarters.

Project Director for the URS/Matrix Company was G. Richard Hatterick. Principal contributors from the URS/Matrix Company, Man Systems Division, to the performance of the study reported herein were Robert C. Harrison, Edwin C. Pruett, James H. LeFan, Benita C. Hayes, Estelle M. Wald, and Thomas A. Dashner.

## FOREWORD

This study contract (NAS8-28359) was awarded to the URS/Matrix Company by the NASA George C. Marshall Space Flight Center to define the task performance capability requirements and to develop concepts for the experimenter workstations for selected early Shuttle Sortie missions. A further goal was to update and expand the task performance requirement/capability data base. Methodology utilized in defining task performance requirements and requisite skills for payload experiments was the "Task-Skill" technique developed under Contract NASw-2192.

Readers of this report who are closely associated with the Sortie Lab program will recognize instances where statements made, or data presented, herein are not in accord with their own knowledge of the program. Every reasonable attempt has been made to incorporate or reflect the current status of Sortie Lab definition and development. Such discrepancies are more easily understood when it is recognized that this study was initiated during the transition from the earlier baseline of "Blue Book" data, subsequently modified by RAM and SOAR studies, to what is now known as Sortie Lab. The rapidly changing environment in which experiment and payload definition studies are conducted makes such discrepancies inevitable.

This report provides a brief description of methodology, a presentation and discussion of the skill requirements for early Sortie Lab Earth Observation and Materials Sciences payloads, and the results of the analyses to define concepts for experimenter workstation configurations for these missions. It is expected that this report will have greatest utility to those involved in training and personnel resource planning, and Sortie Lab Support Module designers. It should also be useful to mission planners confronted with problems regarding payload composition.

The report is packaged in two parts: .

Part I: Technical Report, with Appendices A - G containing explanatory data.

Part II: Appendix H, containing the Data Sheets resulting from the Task/Skill Requirements Analysis.



## SUMMARY

Preliminary NASA studies aimed at definition of experiments and payloads for orbiting with the Space Shuttle system have included various types of crew skill requirements identification. The skill identification methods used, however, were inadequate, especially when applied to relatively undefined systems and configurations.

This study applied a skill requirement definition method (originally developed under Contract NASw-2192) to the problem of determining, at an early stage in system/mission definition, the skills required of on-orbit crew personnel whose activities will be related to the conduct or support of earth-orbital research. The experiment data base was selected from proposed experiments in NASA's Earth Orbital Research and Application Investigation program as related to Space Shuttle missions, specifically those being considered for Sortie Lab.

Activities during the study, documented in this report, include identification of basic functions dealing with man's research and/or servicing activities on orbit. A Crew Function Taxonomy was prepared relative to these activities. Likely candidate experiments for Shuttle Sortie missions were selected through extensive review of experiment and mission descriptions.

Crew functions and tasks were initially identified for more than fifty representative earth orbital experiments, and a comprehensive task analysis was conducted on these tasks for selected payloads.

Crew skill requirements for performance of three Earth Observations experiments and eight Materials Sciences experiments were identified through a technique called Task-Skill Requirements Identification. The concept and procedure of this technique, including use of the Task Dependency Reference system, is discussed, along with conversion of Task-Skills to Occupational Skill Classifications.

In addition, concepts for two integrated workstation consoles for Sortie Lab experiment operations were developed, one each for Earth Observations and Materials Sciences payloads, utilizing a common supporting subsystems core console.

A comprehensive data base of crew functions, operating environments, task dependencies, task-skills and occupational skills applicable to a representative cross section of earth orbital research experiments is presented. All data has been coded alphanumerically to permit efficient, low cost exercise and application of the data through automatic data processing in the future.

## APPENDIX H

## TASK/SKILL REQUIREMENTS DATA SHEETS

This part of the report presents the results of the task and skills analysis of selected experiments projected for Sortie Lab research missions. The methods used in arriving at the skills listed herein are explained in Section 2.0 of the report; the results are summarized by payload and experiment in Section 3.0.

Task/Skill Requirements data sheets for the following Sortie Lab experiments/payloads are included in this Appendix.

## Earth Observations

- EO-3 Air and Water Pollution
- EO-4 Resource Location and Identification
- EO-5 Natural Disaster Assessment

## Materials Sciences and Manufacturing

- MS-1 Biological Experiments
  - MS-1(1) Separation of Biologicals
- MS-2 Levitation Experiments
  - MS-2(1) Preparation of Glasses
  - MS-2(2) Supercooling and Homogeneous Nucleation
  - MS-2(3) Crystal Growth from Solutions
- MS-3 Furnace Experiments
  - MS-3(1) Composite Materials
  - MS-3(2) Directional Solidification  
(Liquid Dispersions)
- MS-4 Small and Low Temperature Experiments
  - MS-4(1) Convection of Fluids
  - MS-4(2) Crystal Growth from Melts



NOTES FOR FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

<u>Expt. #</u>		<u>Expt. #</u>	
EO-1	Does not apply to early Sortie Lab missions which do not provide for on-board maintenance/repair capability. Will apply to later missions, which may also require scheduled maintenance.	MS-1	Secondary task dependencies in parenthesis may be involved, but cannot be confirmed at present.
EO-2	Does not apply to early Sortie Lab missions which will not include an on-board film processing capability. Will apply to later missions.	MS-2	Simplified summary of tasks and skills: Series MS-1-A, Experiment 1.2, Preservation of Biologicals, covers complete requirements, but is not included herein since it is not designated for an early S/L mission.
EO-3	This is a special skill requirement for which no primary Occupational Skill category exists. Satisfaction of the skill requirement will require training and familiarization specific to the flight profile and planned mission operations, or with the specific item of equipment involved.	MS-3	Does not apply to early Sortie Lab missions, which will not include an on-board film processing capability. Will apply to later missions. In addition, film cameras are not included in the identified equipment requirements for the Sortie Lab MS Lab (for some experiments) although there is a general requirement for photography and film processing.
		MS-4	Does not apply to early Sortie Lab missions which do not provide for on-board maintenance/repair capability. Will apply to later missions, which may also require scheduled maintenance.
		MS-5	This task (#7, Function #06, Payload MS-2 (2)) was originally dependent on the utilization of the Zone Melter for ingot separation. Sortie Lab documentation reviewed includes no provisions for use of the Zone Melter. Consequently, task dependency and skill relationships cannot be determined until substitute equipment is defined. An alternative approach might be to use smaller samples requiring no separation into manageable dimensions or shapes.
		MS-6	This experiment (MS-2(3)): Crystal Growth from Solutions) was selected as representative of the crystal growth experiments to satisfy Sortie Lab planning for "some" crystals experiments. See also payload MS-4(2).
		MS-7	This experiment (MS-3(2): Liquid Dispersions) was selected as representative of the convectionless solidification experiments to satisfy Sortie Lab planning for "directional solidification" experiments.
		MS-8	This experiment (MS-4(2): Crystal Growth from Melts) was selected as representative of the application of the zone refining technique to satisfy Sortie Lab planning for "zone refining" experiments.

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: EARTH RESOURCES**

**FPE: ES-1-EARTH OBSERVATIONS**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD EO-3**

**EXPERIMENT: 3.0 AIR AND WATER POLLUTION**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: Earth Resources				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Observe settings on sensors	01	01	2.B.04-6	2.A.17-3	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-1	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.04-2	TV Camera Mode Monitor	0212	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2	Radiometer Mode Monitor	0644	003.281	Instrumentation Technician		
		01	01	2.B.04-16	2.A.23	Polarimeter Mode Monitor	0653	003.281	Instrumentation Technician		
		01	01	2.B.04-9	2.A.03-15	Spectrometer Mode Monitor	0787	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5	Telescope Mode Monitor	0942	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.17-4	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-2	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
2	Record band settings, look angles, exposures, filters, etc.	06	01	2.B.04-18	2.A.01-5	Telescope Mode Recorder	0943	003.281	Instrumentation Technician		
					2.A.15-1						
					2.A.15-2						
					2.F.02-3						
		06	01	2.B.04-13	4.D.08-2	TV Camera Mode Recorder	2045	003.281	Instrumentation Technician		
					4.D.10						
					2.A.04-2						
					2.A.15-1						
		06	01	2.B.04-4	2.A.15-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					2.F.02-3						
					4.D.08-2						
					4.D.10						
06	01	2.B.04-14	2.A.19-1	Scanner Mode Recorder	2046	003.281	Instrumentation Technician				
			2.A.15-1								
			2.A.15-2								
			2.F.02-3								
06	01	2.B.04-11	4.D.08-2	Radiometer Mode Recorder	2047	003.281	Instrumentation Technician				
			4.D.10								
			2.A.21-2								
			2.A.15-1								

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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	06	01	2.B.04-16	2.A.23 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Polarimeter Mode Recorder	2048	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-04-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
3	Observe film remaining status	01	01	2.B.04-6	2.A.27-1	Camera Status Monitor	2050	003.281	Instrumentation Technician	EO-3	
		01	01	2.B.04-11	2.A.27-3	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.27-2	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.27-4	TV Camera Status Monitor	2052	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.27-5	Camera Status Monitor	2050	003.281	Instrumentation Technician		
4	Review data collected, time remaining, atmospheric conditions, etc., to establish observing program.	02	01	5.I.01	5.B.02	Meteorological Conditions Observer	0516	025.088 025.288	Meteorologist Weather Observer (Aid)		
					2.A.01-5						
					2.B.04-18						
					1.G.02-11						
					2.F.01-1						
		02	01	6.A.01-2 3.C.02-2	2.F.02-3	Time Elapsed Observer Atmospheric Pollution Data Observer	2051 2053	xxx.xxx 024.081 025.088 025.288	Special Spaceflight Skill Geophysicist Meteorologist Weather Observer		
					2.F.03-1						
					2.G.03-1						
					5.I.01						
					5.B.02						
		02	01	3.C.03-2	2.F.01-1	Water Pollution Data Observer	2054	024.081	Geophysicist: Hydrologist Oceanographer, Physical		
					2.F.02-3						
					2.F.03-1						
					2.G.03-1						
					5.I.01						
		02	01	3.C.04-2	5.B.02	Water Pollution Data Observer	2054	024.081	Geophysicist		
					2.F.01-1						
					2.F.02-3						
					2.F.03-1						
					2.G.03-1						
11	01	3.C.02-2	5.I.01	Atmospheric Pollution Data Evaluator	2056	024.081 025.081 025.288	Geophysicist Meteorologist Weather Observer				
			5.B.02								
			2.F.01-1								
			2.F.02-3								
			2.F.03-1								
11	01	3.C.03-2	2.G.03-1	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist Oceanographer, Physical				
			5.I.01								
			5.B.02								
			2.F.01-1								
			2.F.02-3								
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observation				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	11	01	3.C.04-2	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer	EO-3	
		11	01	5.I.01	5.B.02 2.A.01-5 2.B.04-18	Meteorological Condition Evaluator	2057	025.088 025.288	Meteorologist Weather Observer		
		11	01	6.A.01-1	6.A.01-2 6.A.01-3 5.L.02	Mission Events Evaluator	2058	xxx.xxx	Special Spaceflight Skill		
5	Checkout experiment sensors	03	01	2.A.17-3	4.D.18	Camera Inspector	0294	714.684	Camera Inspector		
		03	01	2.A.17-4	4.D.18	Camera Inspector	0294	714.684	Camera Inspector		
		03	01	2.A.04-2	4.D.18	TV System Inspector	2059	722.287	Inspector, Systems		
		03	01	2.A.19-1	4.D.18	Scanner Inspector	0828	722.281	Inspector, Systems		
		03	01	2.A.19-2	4.D.18	Scanner Inspector	0828	722.281	Inspector, Systems		
		03	01	2.A.21-2	4.D.18	Radiometer Inspector	0829	722.281	Inspector, Systems		
		03	01	2.A.23	4.D.18	Polarimeter Inspector	0831	722.281	Inspector, Systems		
		03	01	2.A.03-15	4.D.18	Spectrometer Inspector	0833	722.281	Inspector, Systems		
		14	01	2.B.04-6	2.A.17-3	Camera Tester	1448	003.181	Electrical Technician		
		14	01	2.B.04-12	2.A.17-4	Camera Tester	1448	003.181	Electrical Technician		
		14	01	2.B.04-13	2.A.04-2	TV System Tester	2060	003.181	Electrical Technician		
		14	01	2.B.04-14	2.A.19-1	Scanner Tester	2061	003.181	Electrical Technician		
		14	01	2.B.04-4	2.A.19-2	Scanner Tester	2061	003.181	Electrical Technician		
		14	01	2.B.04-11	2.A.21-2	Radiometer Tester	0641	003.181	Electrical Technician		
		14	01	2.B.04-16	2.A.23	Polarimeter Tester	2062	003.181	Electrical Technician		
		14	01	2.B.04-9	2.A.03-15	Spectrometer Tester	0040	003.181	Electrical Technician		
6	Calibrate absorption spectrometer	08	01	2.B.04-9	2.A.03-15 4.C.01	Spectrometer Calibrator	0072	710.884 003.181	Calibrator Electrical Technician		
7	Coalign observation telescope with spectral polarimeter	09	01	2.B.04-18	2.A.01-5	Telescope Aligner	0297	710.884 003.181	Calibrator Electrical Technician		
		09	01	2.B.04-16	2.A.23	Polarimeter Aligner	2063	710.884 003.181	Calibrator Electrical Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
18	Select data collection mode	13	01	2.B.04-6	2.A.17-3 3.C.02 3.C.03 3.C.04	Camera Mode Selector	0271	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-12	2.A.17-4 3.C.02 3.C.03 3.C.04	Camera Mode Selector	0271	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-13	2.A.04-2 3.C.02 3.C.03 3.C.04	TV Mode Selector	0268	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-14	2.A.19-1 3.C.02 3.C.03 3.C.04	Scanner Mode Selector	0916	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-4	2.A.19-2 3.C.02 3.C.03 3.C.04	Scanner Mode Selector	0916	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-11	2.A.21-2 3.C.02 3.C.03 3.C.04	Radiometer Mode Selector	0917	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-16	2.A.23 3.C.02 3.C.03 3.C.04	Polarimeter Mode Selector	0918	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-9	2.A.03-15 3.C.02 3.C.03 3.C.04	Spectrometer Mode Selector	0267	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		13	01	2.B.04-18	2.A.01-5 3.C.02 3.C.03 3.C.04	Telescope Mode Selector	0265	025.088 003.181 024.081	Meteorologist Electrical Technician Geophysicist: Hydrologist, Oceanographer		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH			SERIES ES-1-A

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	Collaborate in air and water pollution analysis with ground observers	05 11	01 01	4.A.02 3.C.02-2	2.B.04 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 4.A.02	Radio Communicator	0206	003.187	Radio Engineer		
						Atmospheric Pollution Data Evaluator	2056	024.081	Geophysicist: Hydrologist, Oceanographer		
								025.088 025.288	Meteorologist Weather Observer		
		11	01	3.C.03-2	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer		
		11	01	3.C.04-2	4.A.02 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 4.A.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-04-6	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
27	Load film in cameras	27	01	2.A.27-1	2.A.17-3 2.E.06 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
		27	01	2.A.27-2	2.A.17-4 2.E.06 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
		27	01	2.A.27-4	2.A.04-2 2.E.04 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
34	Perform instrument modification	26	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Remover	0187	007.081 003.181	Optical Technician Electrical Technician		
		27	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Installer	0188	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.03-15	2.C.13 4.D.18	Spectrometer Module Remover	0109	003.181	Electrical Technician		
		27	01	2.A.03-15	2.C.13 4.D.18	Spectrometer Module Installer	0110	003.181	Electrical Technician		
		26	01	2.A.17-3	2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician		
		27	01	2.A.17-3	2.C.13 4.D.18	Camera Module Installer	0160	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.17-4	2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician		
		27	01	2.A.17-4	2.C.13 4.D.18	Camera Module Installer	0160	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.19-1	2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician		
		27	01	2.A.19-1	2.C.13 4.D.18	Scanner Module Installer	0905	003.181	Electrical Technician		
		26	01	2.A.21-2	2.C.13 4.D.18	Radiometer Module Remover	0638	003.181	Electrical Technician		
		27	01	2.A.21-2	2.C.13 4.D.18	Radiometer Module Installer	0637	003.181	Electrical Technician		
		26	01	2.A.23	2.C.13 4.D.18	Polarimeter Module Remover	0908	003.181	Electrical Technician		
		27	01	2.A.23	2.C.13 4.D.18	Polarimeter Module Installer	0909	003.181	Electrical Technician		
		26	01	2.A.19-2	2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-3-04-7		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
34	(Continued)	27	01	2.A.19-2	2.C.13 4.D.18	Scanner Module Installer	0905	003.181	Electrical Technician	
		26	01	2.A.04-2	2.C.13 4.D.18	TV Camera Module Remover	0111	003.181	Electrical Technician	
		27	01	2.A.04-2	2.C.13 4.D.18	TV Camera Module Installer	0112	003.181	Electrical Technician	
		26	01	4.B.01-3	2.C.13 4.D.18	Computer Module Remover	0519	003.187 003.181	Systems Eng., Elec. Data Processing Electrical Technician	
		27	01	4.B.01-3	2.C.13 4.D.18	Computer Module Installer	0520	003.187 003.181	Systems Eng., Elec. Data Processing Electrical Technician	
		26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	

REVISION NO:

REVISION DATE:

PREPARED BY: JHL/GRH/EMW

APPROVED BY: GRH

SERIES ES-1-A

PAGE EO-3-04-8

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 04 - Experiment Setup			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
34	(Continued)	27	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-15	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-15	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	
		26	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equip. Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician	
		27	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equip. Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-3-04-9
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 05. Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
30	Shutdown sensors	16	01	2.B.04-6	2.A.17-3	Camera Control Deactuator	0848	003.281	Instrumentation Technician		
		16	01	2.B.04-12	2.A.17-4	Camera Control Deactuator	0848	003.281	Instrumentation Technician		
		16	01	2.B.04-13	2.A.04-2	TV System Control Deactuator	2068	003.281	Instrumentation Technician		
		16	01	2.B.04-14	2.A.19-1	Scanner Control Deactuator	0849	003.281	Instrumentation Technician		
		16	01	2.B.04-4	2.A.19-2	Scanner Control Deactuator	0849	003.281	Instrumentation Technician		
		16	01	2.B.04-11	2.A.21-2	Radiometer Control Deactuator	0673	003.281	Instrumentation Technician		
		16	01	2.B.04-16	2.A.23	Polarimeter Control Deactuator	0919	003.281	Instrumentation Technician		
		16	01	2.B.04-9	2.A.03-15	Spectrometer Control Deactuator	0409	003.281	Instrumentation Technician		
		16	01	2.B.04-18	2.A.01-5	Telescope Control Deactuator	0320	003.281	Instrumentation Technician		
		31	Package data for earth return	17	01	2.A.27-1	4.A.04 4.D.20 4.D.04-1	Film Stower	0852		000.000
17	01			2.A.27-2	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
17	01			2.A.27-3	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
17	01			2.A.27-4	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
17	01			2.A.27-5	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
32	Clean and service optics	19	01	2.A.01-5	4.D.06 4.D.18 2.C.13	Telescope Optics Cleaner	0004	003.281	Instrumentation Technician		
		19	01	2.A.03-15	4.D.06 4.D.18 2.C.13	Spectrometer Optics Cleaner	0095	003.281	Instrumentation Technician		
		19	01	2.A.17-3	4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician		
		19	01	2.A.17-4	4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-05-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 05 Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	19	01	2.A.19-1	4.D.06 4.D.18 2.C.13	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician		
		19	01	2.A.21-2	4.D.06 4.D.18 2.C.13	Radiometer Optics Cleaner	0924	003.281	Instrumentation Technician		
		19	01	2.A.23	4.D.06 4.D.18 2.C.13	Polarimeter Optics Cleaner	0925	003.281	Instrumentation Technician		
		19	01	2.A.19-2	4.D.06 4.D.18 2.C.13	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician		
		19	01	2.A.04-2	4.D.06 4.D.18 2.C.13	TV Camera Optics Cleaner	0096	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-05-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Observe settings on sensors	01	01	2.B.04-6	2.A.17-3	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-1	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.04-2	TV Camera Mode Monitor	0212	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2	Radiometer Mode Monitor	0644	003.281	Instrumentation Technician		
		01	01	2.B.04-16	2.A.23	Polarimeter Mode Monitor	0653	003.281	Instrumentation Technician		
		01	01	2.B.04-9	2.A.03-15	Spectrometer Mode Monitor	0787	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5	Telescope Mode Monitor	0942	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.17-4	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-2	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.B.04-18	2.A.01-5	Telescope Mode Recorder	0943		003.281
2.A.15-1											
2.A.15-2											
2.F.02-3											
06	01			2.B.04-13	4.D.08-2	TV Camera Mode Recorder	2045	003.281	Instrumentation Technician		
					4.D.10						
					2.A.04-2						
					2.A.15-1						
06	01			2.B.04-4	2.A.15-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					2.F.02-3						
					4.D.08-2						
					4.D.10						
06	01			2.B.04-14	2.A.19-1	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					2.A.15-1						
					2.A.15-2						
					2.F.02-3						
06	01	2.B.04-14	4.D.08-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician				
			4.D.10								
			2.A.19-2								
			2.A.15-1								
06	01	2.B.04-14	2.A.15-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician				
			2.F.02-3								
			4.D.08-2								
			4.D.10								

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-3-06-1
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	06	01	2.B.04-11	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Telescope Mode Recorder	0943	003.281	Instrumentation Technician	EO-3	
		06	01	2.B.04-16	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Polarimeter Mode Recorder	2048	003.281	Instrumentation Technician		
		06	01	2.B.04-9	2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Spectrometer Mode Recorder	2049	003.281	Instrumentation Technician		
3	Observe film remaining status	01	01	2.B.04-6	2.A.27-1	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.27-3	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.27-2	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.27-4	TV Camera Status Monitor	2052	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.27-5	Camera Status Monitor	2050	003.281	Instrumentation Technician		
9	Use telescope to scan area for ocean spectral analysis	02	01	2.B.04-18	3.C.04 2.A.01-5 2.A.14 2.A.15	Telescope Presentation Observer	0895	024.081	Geophysicist: Hydrologist, Oceanographer		
		10	01	2.B.08	3.C.04 2.A.01-5 2.A.14 2.A.15	Telescope Controller	0337	xxx.xxx	Special Spaceflight Skill		
10	Use sensors to detect polluted air masses	02	01	2.B.04-13	2.A.04-2 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5	TV Presentation Observer	0896	024.081	Geophysicist: Hydrologist, Oceanographer		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
10	(Continued)	02	01	2.B.04-14	2.A.19-1 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5	Scanner Presentation Observer	0897	024.081	Geophysicist		
		02	01	2.B.04-4	2.A.19-2 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5	Scanner Presentation Observer	0897	024.081	Geophysicist		
		02	01	2.B.04-11	2.A.21-2 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5	Radiometer Presentation Observer	0898	024.081	Geophysicist		
		02	01	2.B.04-16	2.A.23 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5	Polarimeter Presentation Observer	0914	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-3-06-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
10	(Continued)	02	01	2.B.04-9	2.A.03-15 3.C.02-2 2.A.14 2.A.15 2.A.27 2.B.04-18 2.A.17-3 2.A.17-4 2.A.01-5	Spectrometer Presentation Observer	0915	024.081	Geophysicist		
		04	01	2.B.04-13	2.A.04-2 3.C.02-2 2.A.01-5 2.F.02-4	TV Data Classifier	2076	024.081	Geophysicist		
		04	01	2.B.04-14	2.A.19-1 3.C.02-2 2.A.01-5 2.F.02-4	Scanner Data Classifier	2077	024.081	Geophysicist		
		04	01	2.B.04-4	2.A.19-2 3.C.02-2 2.A.01-5 2.F.02-4	Scanner Data Classifier	2077	024.081	Geophysicist		
		04	01	2.B.04-11	2.A.21-2 3.C.02-2 2.A.01-5 2.F.02-4	Radiometer Data Classifier	2078	024.081	Geophysicist		
		04	01	2.B.04-16	2.A.23 3.C.02-2 2.A.01-5 2.F.02-4	Polarimeter Data Classifier	2079	024.081	Geophysicist		
		04	01	2.B.04-9	2.A.03-15 3.C.02-2 2.A.01-5 2.F.02-4	Spectrometer Data Classifier	2080	024.081	Geophysicist		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH			SERIES ES-1-A

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	Identify ocean pollution and vegetation	02	01	2.B.04-13	2.A.04-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	TV Presentation Observer	0896	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-14	2.A.19-1 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Presentation Observer	0897	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-4	2.A.19-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Presentation Observer	0897	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-11	2.A.21-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radiometer Presentation Observer	0898	024.081	Geophysicist: Oceanographer, Hydrologist		
REVISION NO:		REVISION DATE:			PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-3-06-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	02	01	2.B.04-16	2.A.23 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Polarimeter Presentation Observer	0914	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-9	2.A.03-15 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Presentation Observer	0915	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-13	2.A.04-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	TV Data Classifier	2076	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-14	2.A.19-1 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-3-06-6	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1, Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	04	01	2.B.04-4	2.A.19-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-11	2.A.21-2 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6	Radiometer Data Classifier	2078	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-16	2.A.23 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6	Polarimeter Data Classifier	2079	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-9	2.A.03-15 3.C.04-1 3.C.04-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Data Classifier	2080	024.081	Geophysicist: Oceanographer, Hydrologist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
12	Identify water pollution targets	02	01	2.B.04-13	2.A.04-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	TV Presentation Observer	0896	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-14	2.A.19-1 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Presentation Observer	0897	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-4	2.A.19-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Presentation Observer	0897	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-11	2.A.21-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radiometer Presentation Observer	0898	024.081	Geophysicist: Oceanographer, Hydrologist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-8	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
12	(Continued)	02	01	2.B.04-16	2.A.23 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Polarimeter Presentation Observer	0914	024.081	Geophysicist: Oceanographer, Hydrologist		
		02	01	2.B.04-9	2.A.03-15 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Presentation Observer	0915	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-13	2.A.04-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	TV Data Classifier	2076	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-14	2.A.19-1 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-9	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
12	(Continued)	04	01	2.B.04-4	2.A.19-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Data Classifier	2077	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-11	2.A.21-2 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radiometer Data Classifier	2078	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-16	2.A.23 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Polarimeter Data Classifier	2079	024.081	Geophysicist: Oceanographer, Hydrologist		
		04	01	2.B.04-9	2.A.03-15 3.C.04-2 3.C.03-2 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Data Classifier	2080	024.081	Geophysicist: Oceanographer, Hydrologist		
13	Track polluted air mass	02	01	2.B.04-9	2.A.03-15 3.C.02-2 2.E.05	Spectrometer Presentation Observer	0915	024.081	Geophysicist: Oceanographer, Hydrologist		
REVISION NO:		REVISION DATE:			PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-10

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE			
13	(Continued)	02	01	2.B.04-16	2.A.23 3.C.02-2 2.E.05	Polarimeter Presentation Observer	0914	024.081	Geophysicist	EO-3		
		02	01	2.B.09	2.A.01-5 2.B.04-18 3.C.02-2 2.E.05	Telescope Presentation Observer	0895	024.081	Geophysicist			
		10	01	2.B.04-6	2.A.17-4 3.C.02-2	Camera Controller	0335	xxx.xxx	Special Spaceflight Skill			
		10	01	2.B.04-0	2.A.03-5 3.C.02-2	Spectrometer Controller	0336	xxx.xxx	Special Spaceflight Skill			
		10	01	2.B.04-16	2.A.23 3.C.02-2	Polarimeter Controller	2081	xxx.xxx	Special Spaceflight Skill			
		10	01	2.B.04-18	2.A.01-5 2.B.09 3.C.02-2	Telescope Controller	0337	xxx.xxx	Special Spaceflight Skill			
		14	Analyze polluted air content	12	01	2.B.04-13	2.A.04-2 2.B.09 3.C.02-2 2.F.01-1 2.F.03	TV Data Analyzer	2082		024.081	Geophysicist
12	01			2.B.04-14	2.A.19-1 3.C.02-2 2.F.01-1 2.F.03	Scanner Data Analyzer	2083	024.081	Geophysicist			
12	01			2.B.04-4	2.A.19-2 3.C.02-2 2.F.01-1 2.F.03	Scanner Data Analyzer	2083	024.081	Geophysicist			
12	01			2.B.04-11	2.A.21-2 3.C.02-2 2.F.01-1 2.F.03	Radiometer Data Analyzer	2084	024.081	Geophysicist			
12	01			2.B.04-16	2.A.23 3.C.02-2 2.F.01-1 2.F.03	Polarimeter Data Analyzer	2085	024.081	Geophysicist			
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-11		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations.				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab, Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	(Continued)	12	01	2.B.04-9	2.A.03-15 3.C.02-2 2.F.01-1 2.F.03	Spectrometer Data Analyzer	2086	024.081	Geophysicist		
		12	01	2.B.09	2.B.04-18 2.A.01-5 3.C.02-2 2.F.01-1 2.F.03	Telescope Data Analyzer	2087	024.081	Geophysicist		
15	Record areal extent and total contract of pollutants in atmosphere and water	15	01	2.B.04-6	2.A.17-3 2.F.02-2 4.D.08-2 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4 2.F.02-2 4.D.08-2 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-13	2.F.03 2.A.04 2.F.02-2 4.D.08-2 4.D.10	TV System Control Actuator	1549	003.281	Instrumentation Technician		
		15	01	2.B.04-11	2.A.21-2 2.F.02-2 4.D.08-2 4.D.10	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
16	Determine if standard sensors are adequate due to weather conditions	04	01	2.A.19-1	2.B.04-14 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081	Geophysicist		
		04	01	2.A.19-2	2.B.04-4 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-12	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
16	(Continued)	04	01	2.A.04-2	2.B.04-13 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	TV Camera Adequacy Determiner	2089	024.081	Geophysicist		
		04	01	2.A.21-2	2.B.04-11 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Radiometer Adequacy Determiner	2090	024.081	Geophysicist		
		04	01	2.A.23	2.B.04-15 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Polarimeter Adequacy Determiner	2091	024.081	Geophysicist		
		04	01	2.A.01-5	2.B.04-18 2.B.09 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Telescope Adequacy Determiner	2092	024.081	Geophysicist		
		04	01	2.A.17-3	2.B.04-6 2.B.09 2.A.27 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081	Geophysicist		
		04	01	2.A.17-4	2.B.04-12 2.B.09 2.A.27 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-3-06-13	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E003				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	Activate sensors	15	01	2.B.04-6	2.A.17-3	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-13	2.A.04-2	TV Camera Control Actuator	0672	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-4	2.A.19-2	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-11	2.A.21-2	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
		15	01	2.B.04-16	2.A.23	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician		
		15	01	2.B.04-9	2.A.03-15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-18	2.A.01-5	Telescope Control Actuator	0846	003.281	Instrumentation Technician		
19	Monitor data collection process	01	01	2.B.04-6	2.F.01	Camera Operation Monitor	1344	003.281	Instrumentation Technician		
					2.F.03						
					4.B.01-2						
		01	01	2.B.04-12	2.F.01	Camera Operation Monitor	1344	003.281	Instrumentation Technician		
					2.F.03						
					4.B.01-2						
		01	01	2.B.04-13	2.F.01	TV System Operation Monitor	2094	003.281	Instrumentation Technician		
					2.F.03						
					4.B.01-2						
		01	01	2.B.04-14	2.F.01	Scanner Operation Monitor	2095	003.281	Instrumentation Technician		
					2.F.03						
					4.B.01-2						
		01	01	2.B.04-4	2.F.01	Scanner Operation Monitor	2095	003.281	Instrumentation Technician		
					2.F.03						
					4.B.01-2						
01	01	2.B.04-11	2.F.01	Radiometer Operation Monitor	2096	003.281	Instrumentation Technician				
			2.F.03								
			4.B.01-2								
01	01	2.B.04-16	2.F.01	Polarimeter Operation Monitor	2097	003.281	Instrumentation Technician				
			2.F.03								
			4.B.01-2								
01	01	2.B.04-9	2.F.01	Spectrometer Operation Monitor	2098	003.281	Instrumentation Technician				
			2.F.03								
			4.B.01-2								
01	01	2.B.04-18	2.F.01	Telescope Operation Monitor	2099	003.281	Instrumentation Technician				
			2.F.03								
			4.B.01-2								
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-3-06-14	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observation				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
20	Record fresh water pollution targets	02	01	3.C.03-2	5.B.02	Water Pollution Data Observer	2054	024.081	Geophysicist: Oceanographer Hydrologist		
					5.I.01						
					2.B.04-13						
					2.B.04-14						
					2.B.04-4						
					2.B.04-16						
					2.B.04-9						
					2.B.04-18						
		15	01	2.B.04-6	2.A.17-3	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-13	2.A.04-2	TV System Control Actuator	1549	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-4	2.A.19-2	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
15	01	2.B.04-11	2.A.21-2	Radiometer Control Actuator	0843	003.281	Instrumentation Technician				
15	01	2.B.04-16	2.A.23	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician				
15	01	2.B.04-9	2.A.03-15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician				
21	Review data collected for quality and usefulness	11	01	3.C.02-2	2.F.03-2	Atmosphere Pollution Data Evaluator	2056	024.081	Geophysicist		
					2.F.03-3						
					2.A.27-4						
					2.A.19-1						
					2.A.19-2						
					2.A.21-2						
					2.A.23						
					2.A.03-15						
		2.B.09									
		2.F.02-5									
		11	01	3.C.03-2	2.F.03-2	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Oceanographer, Hydrologist		
		2.F.03-3									
		2.A.27-4									
2.A.19-1											
2.A.19-2											
2.A.21-2											
2.A.23											
2.A.03-15											
2.B.09											
2.F.02-5											

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-3-06-15
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
21	(Continued)	11	01	3.C.04-2	2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.21-2 2.A.23 2.A.03-15 2.B.09 2.F.02-5	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Hydrologist, Oceanographer		
22	Identify irrelevant data	04	01	3.C.02-2	2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.23 2.A.03-15 2.B.09	Atmospheric Pollution Data Classifier	2100	024.081	Geophysicist		
		04	01	3.C.03-2	2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.23 2.A.03-15 2.B.09	Water Pollution Data Classifier	2101	024.081	Geophysicist: Hydrologist, Oceanographer		
		04	01	3.C.04-2	2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.19-2 2.A.23 2.A.03-15 2.B.09	Water Pollution Data Classifier	2101	024.081	Geophysicist: Hydrologist, Oceanographer		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-06-16	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
23	Process film	06	01	4.B.08	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-4 2.A.27-5	Film Developer	0328	976.782	Film Developer	E0-2	
24	Evaluate photographic/ cartographic quality of data	11	01	2.B.09	3.C.02-2 3.C.03-2 3.C.04-2 2.A.17-3 2.A.17-4	Video Data Quality Evaluator	2102	024.081	Geophysicist		
25	Collaborate in air and water pollution analysis with ground observers	05 11	01 01	4.A.02 3.C.02-2	2.B.04 2.F.01-1 2.F.02-3 2.F.03-1 2.6.03-1 5.I.01 5.B.02 4.A.02	Radio Communicator Atmospheric Pollution Data Evaluator	0206 2056	003.187 024.081	Radio Engineer Geophysicist		
		11	01	3.C.03-2	2.F.01-1 2.F.02-3 2.F.03-1 2.6.-3-1 5.I.01 5.B.02 4.A.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Oceanographer, Hydrologist		
11	01	3.C.04-2	2.F.01-1 2.F.02-3 2.F.03-1 2.6.03-1 5.I.01 5.B.02 4.A.02	Water Pollution Data Evaluator	2055	024.081	Geophysicist: Oceanographer, Hydrologist				

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE E0-3-06-17
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
28	Monitor sensor electronic quality	01	01	2.B.04-13	2.A.04-2 3.C.02-2 3.C.03-2	TV Data Quality Monitor	0922	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-1 3.C.02-2 3.C.03-2 3.C.04-2	Scanner Data Quality Monitor	0869	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-2 3.C.02-2 3.C.03-2 3.C.04-2	Scanner Data Quality Monitor	0869	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2 3.C.02-2 3.C.03-2 3.C.04-2	Radiometer Data Quality Monitor	0870	003.281	Instrumentation Technician		
		01	01	2.B.04-16	2.A.23 3.C.0202 3.C.03-2 3.C.04-2	Polarimeter Data Quality Monitor	0873	003.281	Instrumentation Technician		
		01	01	2.B.04-9	2.A.03-15 3.C.0202 3.C.03-2 3.C.04-2	Spectrometer Data Quality Monitor	0872	003.281	Instrumentation Technician		
29	Evaluate proper sensor operation	11	01	2.B.04-6	2.A.17-3	Camera Operation Evaluator	0875	003.281	Instrumentation Technician		
		11	01	2.B.04-12	2.A.17-4	Camera Operation Evaluator	0875	003.281	Instrumentation Technician		
		11	01	2.B.04-13	2.A.04-2	TV Camera Operation Evaluator	0923	003.281	Instrumentation Technician		
		11	01	2.B.04-14	2.A.19-1	Scanner Operation Evaluator	0876	003.281	Instrumentation Technician		
		11	01	2.B.04-4	2.A.19-2	Scanner Operation Evaluator	0876	003.281	Instrumentation Technician		
		11	01	2.B.04-11	2.A.21-2	Radiometer Operation Evaluator	0877	003.281	Instrumentation Technician		
		11	01	2.B.04-16	2.A.23	Polarimeter Operation Evaluator	0880	003.281	Instrumentation Technician		
		11	01	2.B.04-0	2.A.03-15	Spectrometer Operation Evaluator	0879	003.281	Instrumentation Technician		
		11	01	2.B.04-18	2.A.01-5	Telescope Operation Evaluator	0874	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-3-06-18		

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note EO-1)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	Replace/repair any malfunctioning components	07	01	2.B.04-6	2.A.17-3	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
								007.081	Optical Technician		
		07	01	2.B.04-12	2.A.17-4	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
								007.081	Optical Technician		
		07	01	2.B.04-13	2.A.04-2	TV System Fault Identifier	2064	828.281	Electronics Mechanic		
								007.081	Optical Technician		
		07	01	2.B.04-14	2.A.19-1	Scanner Fault Identifier	0887	828.281	Electronics Mechanic		
		07	01	2.B.04-4	2.A.19-2	Scanner Fault Identifier	0887	828.281	Electronics Mechanic		
		07	01	2.B.04-11	2.A.21-2	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic		
		07	01	2.B.04-16	2.A.23	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic		
		07	01	2.B.04-9	2.A.03-15	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic		
		07	01	2.B.04-18	2.A.01-5	Telescope Fault Identifier	0885	828.281	Electronics Mechanic		
								007.081	Optical Technician		
		07	01	2.A.1703	4.C.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
					4.C.07			007.081	Optical Technician		
		07	01	2.A.17-4	4.C.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
					4.C.07			007.081	Optical Technician		
		07	01	2.A.04-2	4.C.02	TV System Fault Identifier	2064	828.281	Electronics Mechanic		
					4.C.07			007.081	Optical Technician		
		07	01	2.A.19-1	4.C.02	Scanner Fault Identifier	0887	828.281	Electronics Mechanic		
		07	01	2.A.19-2	4.C.02	Scanner Fault Identifier	0887	828.281	Electronics Mechanic		
		07	01	2.A.12-2	4.C.02	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic		
		07	01	2.A.23	4.C.02	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic		
		07	01	2.A.03-15	4.C.02	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic		
		07	01	2.A.01-5	4.C.02	Telescope Fault Identifier	0885	838.281	Electronics Mechanic		
					4.C.07						
		07	01	2.B.04	4.C.02	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic		
					4.C.07						
		26	01	2.A.17-3	2.C.13	Camera Module Remover	0158	007.081	Optical Technician		
					4.D.18			003.181	Electrical Technician		
		26	01	2.A.17-4	2.C.13	Camera Module Remover	0158	007.081	Optical Technician		
					4.D.18			003.181	Electrical Technician		
26	01	2.A.04-2	2.C.13	TV System Module Remover	0345	007.081	Optical Technician				
			4.D.18			003.181	Electrical Technician				
26	01	2.A.19-1	2.C.13	Scanner Module Remover	0904	003.181	Electrical Technician				
			4.D.18								
26	01	2.A.19-2	2.C.13	Scanner Module Remover	0904	003.181	Electrical Technician				
			4.D.18								
26	01	2.A.21-2	2.C.13	Radiometer Module Remover	0638	003.181	Electrical Technician				
			4.D.18								
26	01	2.A.23	2.C.13	Polarimeter Module Remover	0908	003.181	Electrical Technician				
			4.D.18								
26	01	2.A.03-15	2.C.13	Spectrometer Module Remover	0109	003.181	Electrical Technician				
			4.D.18								
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-10-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	(Continued)	26	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Remover	0187	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-16	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-16	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH			SERIES ES-1-A

REVISION NO:

REVISION DATE:

PREPARED BY: JHL/GRH/EMW

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SERIES ES-1-A

PAGE EO-3-10-2

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	(Continued)	27	01	2.A.17-3	4.C.02	Camera Module Installer	0160	007.081	Optical Technician		
					4.C.07			003.181	Electrical Technician		
		27	01	2.A.17-4	4.C.02	Camera Module Installer	0160	007.081	Optical Technician		
					4.C.07			003.181	Electrical Technician		
		27	01	2.A.04-2	4.C.02	TV System Module Installer	0346	007.081	Optical Technician		
					4.C.07			003.181	Electrical Technician		
		27	01	2.A.19-1	4.C.02	Scanner Module Installer	0905	003.181	Electrical Technician		
					4.C.07						
		27	01	2.A.19-2	4.C.02	Scanner Module Installer	0905	003.181	Electrical Technician		
					4.C.07						
		27	01	2.A.21-2	4.C.02	Radiometer Module Installer	0637	003.181	Electrical Technician		
					4.C.07						
		27	01	2.A.23	4.C.02	Polarimeter Module Installer	0909	003.181	Electrical Technician		
					4.C.07						
		27	01	2.A.03-15	4.C.02	Spectrometer Module Installer	0110	003.181	Electrical Technician		
					4.C.07						
		27	01	2.A.01-5	4.C.02	Telescope Module Installer	0188	007.081	Optical Technician		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-6	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
28	01	2.B.04-12	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-13	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-14	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-4	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-11	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-16	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-9	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.B.04-18	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic				
			4.C.07			003.181	Electrical Technician				
28	01	2.A.17-3	4.C.02	Camera Repairer	1195	828.281	Electronics Mechanic				
			4.C.07			007.081	Optical Technician				
28	01	2.A.17-4	4.C.02	Camera Repairer	1195	828.281	Electronics Mechanic				
			4.C.07			007.081	Optical Technician				
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-3-10-3	

REVISION NO:

REVISION DATE:

PREPARED BY: JHL/GRH/EMW

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SERIES ES-1-A

PAGE EO-3-10-3

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	(Continued)	28	01	2.A.04-2	4.C.02 4.C.07	TV System Repairer	1194	828.281 007.081	Electronics Mechanic Optical Technician		
		28	01	2.A.19-1	4.C.02 4.C.07	Scanner Repairer	2066	828.281	Electronics Mechanic		
		28	01	2.A.19-2	4.C.02 4.C.07	Scanner Repairer	2066	828.281	Electronics Mechanic		
		28	01	2.A.21-2	4.C.02 4.C.07	Radiometer Repairer	0692	828.281	Electronics Mechanic		
		28	01	2.A.23	4.C.02 4.C.07	Polarimeter Repairer	2067	828.281	Electronics Mechanic		
		28	01	2.A.03-15	4.C.02 4.C.07	Spectrometer Repairer	0779	828.281	Electronics Mechanic		
		28	01	2.A.01-5	4.C.02 4.C.07	Telescope Repairer	1193	828.281 007.081	Electronics Mechanic Optical Technician		
33	Perform fault isolation	07	01	2.A.01-5	2.B.04-18 4.C.01 4.C.02 4.C.05 4.C.07	Telescope Fault Identifier	0885	828.281 007.081	Electronics Mechanic Optical Technician		
		07	01	2.A.03-15	2.B.04-10 4.C.01 4.C.02 4.C.05 4.C.07	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic		
		07	01	2.A.17-3	2.B.04-6 4.C.01 4.C.02 4.C.05 4.C.07	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician		
07	01	2.A.17-4	2.B.04-12 4.C.01 4.C.02 4.C.05 4.C.07	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician				
07	01	2.A.19-1	2.B.04-14 4.C.01 4.C.02 4.C.05 4.C.07	Scanner Fault Identifier	0887	828.281	Electronics Mechanic				

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE E0-3-10-4
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-3				EXPERIMENT: 3.0 Air and Water Pollution				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
33	(Continued)	07	01	2.A.21-2	2.B.04-11 4.C.01 4.C.02 4.C.05 4.C.07	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic		
		07	01	2.A.23	2.B.04-16 4.C.01 4.C.02 4.C.05 4.C.07	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic		
		07	01	2.A.19-2	2.B.04-4 4.C.01 4.C.02 4.C.05 4.C.07	Scanner Fault Identifier	0887	828.281	Electronics Mechanic		
		07	01	2.A.04-2	2.B.04-13 4.C.01 4.C.02 4.C.05 4.C.07	TV Camera Fault Identifier	0689	828.281 007.081	Electronics Mechanic Optical Technician		
		07	01	2.B.04	4.C.01 4.C.02 4.C.05 4.C.07	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic		
		07	01	4.C.04	4.C.01 4.C.02 4.C.05	Electronic Equipment Fault Identifier	0928	828.281	Electronics Mechanic		
		07	01	4.C.07	4.C.01 4.C.02	Optical Equipment Fault Identifier	0891	007.081	Optical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH			SERIES ES-1-A

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: EARTH RESOURCES**

**FPE: ES-1-EARTH OBSERVATIONS**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD EO-4**

**EXPERIMENT: 4.0 RESOURCE LOCATION AND IDENTIFICATION**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	06	01	2.B.04-15	2.A.12-16 2.F.02-3 4.D.08-2 4.D.10	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation Technician		
		06	01	2.B.04-15	2.A.12-17 2.F.02-3 4.D.08-2 4.D.10	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician		
3	Observe film remaining status	01	01	2.B.04-6	2.A.27-1	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.27-3	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.27-2	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.27-5	Camera Status Monitor	2050	003.281	Instrumentation Technician		
4	Review data taking process to establish observing program	02	01	5.I.01	5.B.02 2.A.01-5 2.B.04-8	Meteorological Conditions Observer	0516	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	EO-3	
		02	01	6.A.01-2	1.G.02-11	Time Elapsed Observer	2051	xxx.xxx	Special Spaceflight Skill		
		02	01	3.C.07	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Land Use Data Observer	2107	024.081	Geophysicist		
		11	01	3.C.07	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Land Use Data Evaluator	2108	024.081	Geophysicist		
		11	01	5.I.01	5.B.02 2.A.01-5 2.B.04-18	Meteorological Conditions Evaluator	2057	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	EO-3	
		11	01	6.A.01-1	6.A.01-2 6.A.01-3 6.L.02	Mission Events Evaluator	2058	xxx.xxx	Special Spaceflight Skill		

REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-4-04-2
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
5	Checkout experiment sensors	03	01	2.A.17-3	4.D.18	Camera Inspector	0294	714.684	Camera Inspector		
		03	01	2.A.1704	4.D.18	Camera Inspector	0294	714.684	Camera Inspector		
		03	01	2.A.04-10	4.D.18	Spectrometer Inspector	0833	722.281	Inspector, Systems		
		03	01	2.A.19-1	4.D.18	Scanner Inspector	0828	722.281	Inspector, Systems		
		03	01	2.A.21-2	4.D.18	Radiometer Inspector	0829	722.281	Inspector, Systems		
		03	01	2.A.23	4.D.18	Polarimeter Inspector	0831	722.281	Inspector, Systems		
		03	01	2.A.03-15	4.D.18	Spectrometer Inspector	0833	722.281	Inspector, Systems		
		03	01	2.A.12-16	4.D.18	Radar Transmitter Inspector	0932	722.281	Inspector, Systems		
		03	01	2.A.12-17	4.D.18	Radar Receiver Inspector	0933	722.281	Inspector, Systems		
		14	01	2.B.04-6	2.A.17-3	Camera Tester	1448	003.181	Electrical Technician		
		14	01	2.B.04-12	2.A.17-4	Camera Tester	1448	003.181	Electrical Technician		
		14	01	2.B.04-13	2.A.04-2	TV System Tester	2060	003.181	Electrical Technician		
		14	01	2.B.04-14	2.A.19-1	Scanner Tester	2061	003.181	Electrical Technician		
		14	01	2.B.04-11	2.A.21-2	Radiometer Tester	0641	003.181	Electrical Technician		
		14	01	2.B.04-16	2.A.23	Polarimeter Tester	2062	003.181	Electrical Technician		
		14	01	2.B.04-9	2.A.03-15	Spectrometer Tester	0040	003.181	Electrical Technician		
		14	01	2.B.04-15	2.A.12-16	Radar Transmitter Tester	0613	003.181	Electrical Technician		
		14	01	2.B.04-15	2.A.12-17	Radar Receiver Tester	0627	003.181	Electrical Technician		
6	Calibrate multispectral spectrometer	08	01	2.B.04-10	2.A.03-13 4.C.01	Spectrometer Calibrator	0072	710.884	Calibrator		
7	Coalign observation telescope with spectral polarimeter	09	01	2.B.04-18	2.A.01-5	Telescope Aligner	0297	710.884	Calibrator		
		09	01	2.B.04-16	2.A.23	Polarimeter Aligner	2063	710.884 003.181	Calibrator Electrical Technician		
16	Select data collection mode	13	01	2.B.04-6	2.A.17-3 3.C.07	Camera Mode Selector	0271	003.181	Electrical Technician		
		13	01	2.B.04-12	2.A.17-4 3.C.07	Camera Mode Selector	0271	003.181	Electrical Technician		
		13	01	2.B.04-10	2.A.03-13 3.C.07	Spectrometer Mode Selector	0267	003.181	Electrical Technician		
		13	01	2.B.04-14	2.A.19-1 3.C.07	Scanner Mode Selector	0916	003.181	Electrical Technician		
		13	01	2.B.04-11	2.A.21-2 3.C.07	Radiometer Mode Selector	0917	003.181	Electrical Technician		
		13	01	2.B.04-16	2.A.23 3.C.07	Polarimeter Mode Selector	0918	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-4-04-3		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
16	(Continued)	13	01	2.B.04-9	2.A.03-15	Spectrometer Mode Selector	0267	003.181	Electrical Technician		
					3.C.07			024.081	Geophysicist		
		13	01	2.B.04-18	2.A.01-5	Telescope Mode Selector	0265	003.181	Electrical Technician		
					3.C.07			024.081	Geophysicist		
		13	01	2.B.04-15	2.A.12-16	Radar Transmitter Mode Selector	0938	003.181	Electrical Technician		
					3.C.07			024.081	Geophysicist		
		13	01	2.B.04-15	2.A.12-17	Radar Receiver Mode Selector	0939	003.181	Electrical Technician		
								024.081	Geophysicist		
26	Load film in cameras	27	01	2.A.27-1	2.A.17-3	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
					2.E.06						
		27	01	2.A.27-2	2.A.17-4	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
					2.E.06						
					4.D.04						
34	Perform instrument modification	26	01	2.A.01-5	2.C.13	Telescope Module Remover	0187	007.081	Optical Technician		
					4.D.18			003.181	Electrical Technician		
		27	01	2.A.01-5	2.C.13	Telescope Module Installer	0188	007.081	Optical Technician		
					4.D.18			003.181	Electrical Technician		
		26	01	2.A.03-15	2.C.13	Spectrometer Module Remover	0109	003.181	Electrical Technician		
					4.D.18						
		27	01	2.A.03-15	2.C.13	Spectrometer Module Installer	0110	003.181	Electrical Technician		
					4.D.18						
		26	01	2.A.17-3	2.C.13	Camera Module Remover	0158	007.081	Optical Technician		
					4.D.18			003.181	Electrical Technician		
		27	01	2.A.17-3	2.C.13	Camera Module Installer	0160	007.081	Optical Technician		
					4.D.18			003.181	Electrical Technician		
		26	01	2.A.17-4	2.C.13	Camera Module Remover	0158	007.081	Optical Technician		
					4.D.18		003.181	Electrical Technician			
		27	01	2.A.17-4	2.C.13	Camera Module Installer	0160	007.081	Optical Technician		
					4.D.18		003.181	Electrical Technician			
		26	01	2.A.19-1	2.C.13	Scanner Module Remover	0904	003.181	Electrical Technician		
					4.D.18						
		27	01	2.A.19-1	2.C.13	Scanner Module Installer	0905	003.181	Electrical Technician		
					4.D.18						
		26	01	2.A.21-2	2.C.13	Radiometer Module Remover	0638	003.181	Electrical Technician		
					4.D.18						
		27	01	2.A.21-2	2.C.13	Radiometer Module Installer	0637	003.181	Electrical Technician		
					4.D.18						
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-04-4	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
34	(Continued)	26	01	2.A.23	2.C.13 4.D.18	Polarimeter Module Remover	0908	003.181	Electrical Technician		
		27	01	2.A.23	2.C.13 4.D.18	Polarimeter Module Installer	0909	003.181	Electrical Technician		
		26	01	4.B.01-3	2.C.13 4.D.18	Computer Module Remover	0519	003.181	Electrical Technician		
		27	01	4.B.01-3	2.C.13 4.D.18	Computer Module Installer	0520	003.181	Electrical Technician		
		26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-16	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-16	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-04-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
34	(Continued)	26	01	2.B.04-10	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		27	01	2.B.04-10	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	003.181	Electrical Technician		
		26	01	2.A.03-13	2.C.13 4.D.18	Spectrometer Module Remover	0109	003.181	Electrical Technician		
		27	01	2.A.03-13	2.C.13 4.D.18	Spectrometer Module Installer	0110	003.181	Electrical Technician		
		26	01	2.A.12-16	2.C.13 4.D.18	Radar Transmitter Module Remover	0615	003.181	Electrical Technician		
		27	01	2.A.12-16	2.C.13 4.D.18	Radar Transmitter Module Installer	0616	003.181	Electrical Technician		
		26	01	2.A.12-17	2.C.13 4.D.18	Radar Receiver Module Remover	0624	003.181	Electrical Technician		
		27	01	2.A.12-17	2.C.13 4.D.18	Radar Receiver Module Installer	0623	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGEEO-4-04-6	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
27	Shutdown sensors	16	01	2.B.04-6	2.A.17-3	Camera Control Deactuator	0848	003.281	Instrumentation Technician		
		16	01	2.B.04-12	2.A.17-4	Camera Control Deactuator	0848	003.281	Instrumentation Technician		
		16	01	2.B.04-14	2.A.19-1	Scanner Control Deactuator	0849	003.281	Instrumentation Technician		
		16	01	2.B.04-11	2.A.21-2	Radiometer Control Deactuator	0673	003.281	Instrumentation Technician		
		16	01	2.B.04-16	2.A.23	Polarimeter Control Deactuator	0919	003.281	Instrumentation Technician		
		16	01	2.B.04-9	2.A.03-15	Spectrometer Control Deactuator	0409	003.281	Instrumentation Technician		
		16	01	2.B.04-10	2.A.03-13	Spectrometer Control Deactuator	0409	003.281	Instrumentation Technician		
		16	01	2.B.04-18	2.A.01-5	Telescope Control Deactuator	0320	003.281	Instrumentation Technician		
		16	01	2.B.04-15	2.A.12-16	Radar Transmitter Control Deactuator	0664	003.281	Instrumentation Technician		
		16	01	2.B.04-15	2.A.12-17	Radar Receiver Control Deactuator	0666	003.281	Instrumentation Technician		
29	Package data for earth return	17	01	2.A.27-1	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-2	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-3	4.D.04-1 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-5	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
30	Clean and service optics	19	01	2.A.01-5	4.D.06 4.D.18 2.C.13	Telescope Optics Cleaner	0004	003.281	Instrumentation Technician		
		19	01	2.A.03-15	4.D.06 4.D.18 2.C.13	Spectrometer Optics Cleaner	0095	003.281	Instrumentation Technician		
		19	01	2.A.17-3	4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician		
		19	01	2.A.17-4	4.D.06 4.D.18 2.C.13	Camera Optics Cleaner	0097	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGEEO-4-05-1		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
30	(Continued)	19	01	2.A.19-1	4.D.06 4.D.18 2.C.13	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician		
		19	01	2.A.21-2	4.D.05 4.D.18 2.C.13	Radiometer Optics Cleaner	0924	003.281	Instrumentation Technician		
		19	01	2.A.23	4.D.06 4.D.18 2.C.13	Polarimeter Optics Cleaner	0925	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-4-05-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Observe settings on sensors	01	01	2.B.04-6	2.A.17-3	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-1	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2	Radiometer Mode Monitor	0644	003.281	Instrumentation Technician		
		01	01	2.B.04-16	2.A.23	Polarimeter Mode Monitor	0653	003.281	Instrumentation Technician		
		01	01	2.B.04-9	2.A.03-15	Spectrometer Mode Monitor	0787	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5	Telescope Mode Monitor	0942	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.1704	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-10	2.A.03-13	Spectrometer Mode Monitor	0787	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-16	Radar Transmitter Mode Monitor	2103	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-17	Radar Receiver Mode Monitor	2104	003.281	Instrumentation Technician		
2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.B.04-18	2.A.15-1	Telescope Mode Recorder	0943	003.281	Instrumentation Technician		
					2.A.15-2						
					2.F.02-3						
					4.D.08-2						
		06	01	2.B.04-10	4.D.10	Spectrometer Mode Recorder	2049	003.281	Instrumentation Technician		
					2.A.15-1						
					2.A.15-2						
					2.F.02-3						
		06	01	2.B.04-4	4.D.08-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					4.D.10						
					2.A.15-1						
					2.A.15-2						
		06	01	2.B.04-11	2.F.02-3	Radiometer Mode Recorder	2047	003.281	Instrumentation Technician		
					4.D.08-2						
					4.D.10						
					2.A.15-1						
		06	01	2.B.04-16	2.A.15-2	Polarimeter Mode Recorder	2048	003.281	Instrumentation Technician		
					2.F.02-3						
					4.D.08-2						
					4.D.10						

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-4-06-1
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REVISION DATE:

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SERIES ES-1-A

PAGE EO-4-06-1

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	06	01	2.B.04-15	2.A.12-16 2.F.02-3 4.D.08-2 4.D.10	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation Technician		
		06	01	2.B.04-15	2.A.12-17 2.F.02-3 4.D.08-2 4.D.10	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician		
3	Observe film remaining status	01	01	2.B.04-6	2.A.27-1	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.27-3	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.27-2	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.27-5	Camera Status Monitor	2050	003.281	Instrumentation Technician		
9	Identify land use data sources	02	01	2.B.04-18	2.A.01-5 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Telescope Presentation Observer	0895	024.081	Geophysicist		
		02	01	2.B.04-15	2.A.12-15 2.A.12-17 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Radar Presentation Observer	0934	024.081	Geophysicist		
		02	01	2.B.04-14	2.A.19-1 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Scanner Presentation Observer	0897	024.081	Geophysicist		
		02	01	2.B.04-10	2.A.03-13 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Spectrometer Presentation Observer	0915	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-2	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	(Continued)	02	01	2.B.04-11	2.A.21-2 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Radiometer Presentation Observer	0898	024.081	Geophysicist		
		02	01	2.B.04-15	2.A.23 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Polarimeter Presentation Observer	0914	024.081	Geophysicist		
		02	01	2.B.04-9	2.A.03-15 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Spectrometer Presentation Observer	0915	024.081	Geophysicist		
		04	01	2.B.04-15	2.A.12-16 2.A.12-17 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Radar Data Classifier	2109	024.081	Geophysicist		
		04	01	2.B.04-14	2.A.19-1 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Scanner Data Classifier	2077	024.081	Geophysicist		
		04	01	2.B.04-11	2.A.21-2 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Radiometer Data Classifier	2078	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-3	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	(Continued)	04	01	2.B.04-16	2.A.23 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Polarimeter Data Classifier	2079	024.081	Geophysicist		
		04	01	2.B.04-9	2.A.03-15 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Spectrometer Data Classifier	2080	024.081	Geophysicist		
		04	01	2.B.04-10	2.A.03-13 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Spectrometer Data Classifier	2080	024.081	Geophysicist		
		04	01	2.B.04-18	2.A.01-5 3.C.07 2.A.14 2.A.15 2.A.28 2.E.05	Telescope Data Classifier	2110	024.081	Geophysicist		
10	Collect land use data	15	01	2.B.04-6	2.A.17-3 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1 3.C.07 2.A.15 4.D.10	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-15 3.C.07 2.A.15 4.D.10	Radar Transmitter Actuator	0935	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-17 3.C.07 2.A.15 4.D.10	Radar Receiver Actuator	0936	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-4	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
10	(Continued)	15	01	2.B.04-11	2.A.21-2 3.C.07 2.A.15 4.D.10	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
		15	01	2.B.04-10	2.A.03-13 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-16	2.A.23 3.C.07 2.A.15 4.D.10	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician		
		15	01	2.B.04-9	2.A.03-15 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-18	2.A.01-5 3.C.07 2.A.15 4.D.10	Telescope Control Actuator	0846	003.281	Instrumentation Technician		
11	Identify resource analysis targets	02	01	2.B.04-15	2.A.12-17 2.A.12-16 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radar Presentation Observer	0934	024.081	Geophysicist		
		02	01	2.B.04-14	2.A.19-1 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Presentation Observer	0897	024.081	Geophysicist		
REVISION NO:		REVISION DATE:			PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-4-06-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	02	01	2.B.04-11	2.A.21-2 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radiometer Presentation Observer	0898	024.081	Geophysicist		
		02	01	2.B.04-16	2.A.23 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Polarimeter Presentation Observer	0914	024.081	Geophysicist		
		02	01	2.B.04-9	2.A.03-15 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Presentation Observer	0915	024.081	Geophysicist		
		02	01	2.B.04-10	2.A.03-13 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Presentation Observer	0915	024.081	Geophysicist		
		04	01	2.B.04-14	2.A.19-1 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Scanner Data Classifier	2077	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-6	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	04	01	2.B.04-11	2.A.21-2 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radiometer Data Classifier	2078	024.081	Geophysicist		
		04	01	2.B.04-16	2.A.23 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Polarimeter Data Classifier	2079	024.081	Geophysicist		
		04	01	2.B.04-9	2.A.03-15 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Data Classifier	2080	024.081	Geophysicist		
		04	01	2.B.04-9	2.A.03-13 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Spectrometer Data Classifier	2080	024.081	Geophysicist		
		04	01	2.B.04-15	2.A.12-16 2.A.12-17 3.C.07 2.A.14 2.A.15 2.A.27 2.E.05 2.B.04-6 2.B.04-12	Radar Data Classifier	2109	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
12	Record land use mapping data	15	01	2.B.04-6	2.A.17-3 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1 3.C.07 2.A.15 4.D.10	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-16 3.C.07 2.A.15 4.D.10	Radar Transmitter Control Actuator	0935	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-17 3.C.07 2.A.15 4.D.10	Radar Receiver Control Actuator	0936	003.281	Instrumentation Technician		
		15	01	2.B.04-11	2.A.21-2 3.C.07 2.A.15 4.D.10	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
		15	01	2.B.04-10	2.A.03-13 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-16	2.A.23 3.C.07 2.A.15 4.D.10	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician		
		15	01	2.B.04-0	2.A.03-15 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-18	2.A.01-5 3.C.07 2.A.15 4.D.10	Telescope Control Actuator	0846	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-8	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
13	Determine if standard sensors are adequate due to weather conditions	04	01	2.A.19-1	2.B.04-14 3.C.07 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.03-13	2.B.04-10 3.C.07 5.B.02 5.I.01	Spectrometer Adequacy Determiner	2111	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.21-2	2.B.04-11 3.C.07 5.B.02 5.I.01	Radiometer Adequacy Determiner	2090	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.23	2.B.04-16 3.C.07 5.B.02 5.I.01	Polarimeter Adequacy Determiner	2091	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.01-5	2.B.04-18 2.B.09 3.C.07 5.B.02 5.I.01	Telescope Adequacy Determiner	2092	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.17-3	2.B.04-6 2.B.09 2.A.27 3.C.07 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.17-4	2.B.04-12 2.B.09 2.A.27 3.C.07 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.12-16	2.B.04-15 3.C.07 5.B.02 5.I.01	Radar Transmitter Adequacy Determiner	2112	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
		04	01	2.A.12-17	2.B.04-15 3.C.07 5.B.02 5.I.01	Radar Receiver Adequacy Determiner	2113	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-9	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
13	(Continued)	04	01	2.A.03-15	2.B.04-9 3.C.07 5.B.02 5.I.01	Spectrometer Adequacy Determiner	2111	024.081 003.281 025.088	Geophysicist Instrumentation Technician Meteorologist		
14	Record ocean resources data	15	01	2.B.04-6	2.A.17-3 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4 3.C.07 2.A.15 4.D.10	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1 3.C.07 2.A.15 4.D.10	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-15 3.C.07 2.A.15 4.D.10	Radar Transmitter Control Actuator	0935	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-17 3.C.07 2.A.15 4.D.10	Radar Receiver Control Actuator	0936	003.281	Instrumentation Technician		
		15	01	2.B.04-11	2.A.21-2 3.C.07 2.A.15 4.D.10	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
		15	01	2.B.04-10	2.A.03-13 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-16	2.A.23 3.C.07 2.A.15 4.D.10	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician		
		15	01	2.B.04-9	2.A.03-15 3.C.07 2.A.15 4.D.10	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-10	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	(Continued)	15	01	2.B.04-18	2.A.01-5 3.C.07 2.A.15 4.D.10	Telescope Control Actuator	0846	003.281	Instrumentation Technician		
15	Activate sensors	15	01	2.B.04-6	2.A.17-3	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-16	Radar Transmitter Control Actuator	0935	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-17	Radar Receiver Control Actuator	0936	003.281	Instrumentation Technician		
		15	01	2.B.04-11	2.A.21-2	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
		15	01	2.B.04-10	2.A.03-13	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-16	2.A.23	Polarimeter Control Actuator	0844	003.281	Instrumentation Technician		
		15	01	2.B.04-9	2.A.03-15	Spectrometer Control Actuator	0036	003.281	Instrumentation Technician		
		15	01	2.B.04-18	2.A.01-5	Telescope Control Actuator	0846	003.281	Instrumentation Technician		
17	Monitor data collection process	01	01	2.B.04-6	2.F.01 2.F.03 4.B.01-2	Camera Operation Monitor	1344	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.F.01 2.F.03 4.B.01-2	Camera Operation Monitor	1344	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.F.01 2.F.03 4.B.01-2	Scanner Operation Monitor	2095	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.F.01 2.F.03 4.B.01-2	Radar Operation Monitor	2114	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.F.01 2.F.03 4.B.01-2	Radiometer Operation Monitor	2096	003.281	Instrumentation Technician		
		01	01	2.B.04-10	2.F.01 2.F.03 4.B.01-2	Spectrometer Operation Monitor	2098	003.281	Instrumentation Technician		
		01	01	2.B.04-16	2.F.01 2.F.03 4.B.01-2	Polarimeter Operation Monitor	2097	003.281	Instrumentation Technician		
		01	01	2.B.04-9	2.F.01 2.F.03 4.B.01-2	Spectrometer Operation Monitor	2098	003.281	Instrumentation Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observation				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
17	(Continued)	01	01	2.B.04-18	2.F.01 2.F.03 4.B.01-2	Telescope Operation Monitor	2099	003.281	Instrumentation Technician	
19	Review data collected for quality and usefulness	11	01	3.C.07	2.F.03-2 2.F.03-3 2.A.27-4 2.A.10-1 2.A.21-2 2.A.23 2.A.03-15 2.B.09 2.F.02-5 2.A.03-13 2.A.12-16 2.A.12-17	Land Use Data Evaluator	2108	024.081	Geophysicist	
20	Identify irrelevant data	04	01	3.C.07	2.F.02-5 2.F.03-2 2.F.03-3 2.A.27-4 2.A.19-1 2.A.23 2.A.03-15 2.B.09 2.A.03-13 2.A.12-15 2.A.12-17	Land Use Data Classifier	2115	024.081	Geophysicist	
21	Process film	06	01	4.B.08	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-4 2.A.27-5	Film Processor	0328	976.782	Film Developer	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-4-06-12
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
22	Evaluate photographic/ cartographic quality of data	11	01	2.B.09	3.C.07 2.A.17-3 2.A.17-4	Video Data Quality Evaluator	2102	024.081	Geophysicist	EO-2	
23	Develop motion and still photographs taken in the land use experiment	06	01	4.B.08	2.A.27-1 2.A.27-2 2.A.27-3 2.A.27-4 2.A.27-5	Film Processor	0328	976.782	Film Developer		
24	Verify landmarks in resource and land use observations	02	01	3.C.07	2.B.09 2.A.01-5 2.B.04-18	Earth Surface Landmark Observer	2116	024.081	Geophysicist		
		04	01	3.C.07	2.B.09 2.A.01-5 2.B.04-18 2.F.02-4	Earth Surface Landmark Classifier	2117	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-06-13	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note EO-1)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	Replace/repair any malfunctioning components	26	01	2.A.17-3	2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.17-4	2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.12-16	2.C.13 4.D.18	Radar Transmitter Module Remover	0615	003.181	Electrical Technician		
		26	01	2.A.12-17	2.C.13 4.D.18	Radar Receiver Module Remover	0624	003.181	Electrical Technician		
		26	01	2.A.19-1	2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician		
		26	01	2.A.21-2	2.C.13 4.D.18	Radiometer Module Remover	0638	003.181	Electrical Technician		
		26	01	2.A.23	2.C.13 4.D.18	Polarimeter Module Remover	0908	003.181	Electrical Technician		
		26	01	2.A.03-15	2.C.13 4.D.18	Spectrometer Module Remover	0109	003.818	Electrical Technician		
		26	01	2.A.03-13	2.C.13 4.D.18	Spectrometer Module Remover	0109	003.181	Electrical Technician		
		26	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Remover	0187	003.181 007.081	Electrical Technician Optical Technician		
		26	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-10	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-15	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-16	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-9	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION NODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	(Continued)	27	01	2.B.04-6	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-12	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-13	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-15	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-14	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-11	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-16	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-9	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-18	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
		27	01	2.B.04-10	2.C.13	Earth Survey C/D Equipment Module	0927	828.281	Electronics Mechanic		
					4.D.18	Installer		003.181	Electrical Technician		
27	01	2.A.17-3	4.C.02	Camera Module Installer	0160	007.081	Optical Technician				
			4.C.07			003.181	Electrical Technician				
27	01	2.A.17-4	4.C.02	Camera Module Installer	0160	007.081	Optical Technician				
			4.C.07			003.181	Electrical Technician				
27	01	2.A.03-13	4.C.02	Spectrometer Module Installer	0110	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.19-1	4.C.02	Scanner Module Installer	0905	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.12-16	4.C.02	Radar Transmitter Module Installer	0616	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.12-17	4.C.02	Radar Receiver Module Installer	0623	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.21-2	4.C.02	Radiometer Module Installer	0637	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.23	4.C.02	Polarimeter Module Installer	0909	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.03-15	4.C.02	Spectrometer Module Installer	0110	003.181	Electrical Technician				
			4.C.07								
27	01	2.A.01-5	4.C.02	Telescope Module Installer	0188	007.081	Optical Technician				
			4.C.07			003.181	Electrical Technician				
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-10-2	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
8	(Continued)	28	01	2.B.04-6	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.181	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-12	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-13	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-15	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-14	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-11	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-16	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-9	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.B.04-18	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
		28	01	2.A.17-3	4.C.02	Camera Repairer	1195	828.281	Electronics Mechanic		
					4.C.07			007.081	Optical Technician		
		28	01	2.A.17-4	4.C.02	Camera Repairer	1195	828.281	Electronics Mechanic		
					4.C.07			007.081	Optical Technician		
		28	01	2.A.12-16	4.C.02	Radar Transmitter Repairer	0684	828.281	Electronics Mechanic		
					4.C.07						
		28	01	2.A.12-17	4.C.02	Radar Receiver Repairer	0686	828.281	Electronics Mechanic		
					4.C.07						
		28	01	2.A.19-1	4.C.02	Scanner Repairer	2066	828.281	Electronics Mechanic		
					4.C.07						
28	01	2.A.21-2	4.C.02	Radiometer Repairer	0692	828.281	Electronics Mechanic				
			4.C.07								
28	01	2.A.23	4.C.02	Polarimeter Repairer	2067	828.281	Electronics Mechanic				
			4.C.07								
28	01	2.A.03-15	4.C.02	Spectrometer Repairer	0779	828.281	Electronics Mechanic				
			4.C.07								
28	01	2.A.03-13	4.C.02	Spectrometer Repairer	0779	828.281	Electronics Mechanic				
			4.C.07								
28	01	2.A.01-5	4.C.02	Telescope Repairer	1193	828.281	Electronics Mechanic				
			4.C.07								
REVISION NO:		REVISION DATE:			PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-4-10-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resource Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
31	Perform fault isolation	07	01	2.A.01-5	2.B.04-18 4.C.01 4.C.02 4.C.05 4.C.07	Telescope Fault Identifier	0885	828.281 007.081	Electronics Mechanic Optical Technician				
		07	01	2.A.03-15	2.B.04-10 4.C.01 4.C.02 4.C.05 4.C.07	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic				
		07	01	2.A.17-3	2.B.04-6 4.C.01 4.C.02 4.C.05 4.C.07	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician				
		07	01	2.A.17-4	2.B.04-12 4.C.01 4.C.02 4.C.05 4.C.07	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician				
		07	01	2.A.19-1	2.B.04-14 4.C.01 4.C.02 4.C.05 4.C.07	Scanner Fault Identifier	0887	828.281	Electronics Mechanic				
		07	01	2.A.21-2	2.B.04-11 4.C.01 4.C.02 4.C.05 4.C.07	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic				
		07	01	2.A.23	2.B.04-16 4.C.01 4.C.02 4.C.05 4.C.07	Polarimeter Fault Identifier	0889	828.281	Electronics Mechanic				
		07	01	2.A.03-13	2.B.04-10 4.C.01 4.C.02 4.C.05 4.C.07	Spectrometer Fault Identifier	0038	828.281	Electronics Mechanic				
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH			SERIES ES-1-A		PAGE EO-4-10-4

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-4				EXPERIMENT: 4.0 - Resources Location and Identification				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	07	01	2.A.04-15	2.A.12-16 4.C.01 4.C.02 4.C.05 4.C.07	Radar Transmitter Fault Identifier	0683	828.281	Electronics Mechanic		
		07	01	2.A.04-15	2.A.12-17 4.C.01 4.C.02 4.C.05 4.C.07	Radar Receiver Fault Identifier	0685	828.281	Electronics Mechanic		
		07	01	2.B.04	4.C.01 4.C.02 4.C.05 4.C.07	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic		
		07	01	4.C.04	4.C.01 4.C.02 4.C.05 4.C.07	Electronic Equipment Fault Identifier	0795	828.281	Electronics Mechanic		
		07	01	4.C.07	4.C.01 4.C.02 4.C.05	Optical Equipment Fault Identifier	0891	007.081	Optical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-4-10-5	



## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: EARTH RESOURCES**

**FPE: ES-1-EARTH OBSERVATIONS**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD EO-5**

**EXPERIMENT: 5.0 NATURAL DISASTER ASSESSMENT**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Observe settings on sensors	01	01	2.B.04-6	2.A.17-3	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-1	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.04-2	TV Camera Mode Monitor	0212	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2	Radiometer Mode Monitor	0644	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5	Telescope Mode Monitor	0942	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.17-4	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-2	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-16	Radar Transmitter Mode Monitor	2103	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-17	Radar Receiver Mode Monitor	2104	003.281	Instrumentation Technician		
		01	01	2.B.04-8	2.A.24	Sferics Detector Mode Monitor	2118	003.281	Instrumentation Technician		
2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.B.04-18	2.A.01-5	Telescope Mode Recorder	0943	003.281	Instrumentation Technician		
					2.A.15-1						
					2.A.15-2						
					2.F.02-3						
		06	01	2.B.04-13	4.D.08-2	TV Camera Mode Recorder	2045	003.281	Instrumentation Technician		
					4.D.10						
					2.A.04-2						
					2.A.15-1						
		06	01	2.B.04-4	2.A.15-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					2.F.02-3						
					4.D.08-2						
					4.D.10						
		06	01	2.B.04-14	2.A.19-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					2.A.15-1						
					2.A.15-2						
					2.F.02-3						
06	01	2.B.04-11	4.D.08-2	Radiometer Mode Recorder	2047	003.281	Instrumentation Technician				
			4.D.10								
			2.A.21-2								
			2.A.15-1								
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW			APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-5-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	06	01	2.B.04-8	2.A.24 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Sferics Detector Mode Recorder	2119	003.281	Instrumentation Technician		
		06	01	2.B.04-15	2.A.12-16 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation Technician		
		06	01	2.B.04-15	2.A.12-17 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician		
		06	01	2.B.04-12	2.A.17-4 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Camera Mode Recorder	2120	003.281	Instrumentation Technician		
		06	01	2.B.04-6	2.A.17-3 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2	Camera Mode Recorder	2120	003.281	Instrumentation Technician		
		3	Observe film remaining status	01	01	2.B.04-6	2.A.27-1	Camera Status Monitor	2050		003.281
01	01			2.B.04-11	2.A.27-3	Camera Status Monitor	2050	003.281	Instrumentation Technician		
01	01			2.B.04-12	2.A.27-2	Camera Status Monitor	2050	003.281	Instrumentation Technician		
01	01			2.B.04-13	2.A.27-4	TV Camera Status Monitor	2052	003.281	Instrumentation Technician		
01	01			2.B.04-18	2.A.27-5	Camera Status Monitor	2050	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-04-2	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	Review data collected, time remaining, atmospheric conditions, etc., to establish observing program	02	01	5.I.01	5.B.02 2.A.01-5 2.B.04-18 1.G.02-11	Meteorological Conditions Observer	0516	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	EO-3	
		02	01	6.A.01-2	1.G.02-11	Time Elapsed Observer	2051	xxx.xxx	Special Spaceflight Skill		
		02	01	3.C.05-1	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Geological Precursor Data Observer	2121	024.081 024.081	Geologist Geophysicist		
		02	01	3.C.05-2	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Meteorological Precursor Data Observer	2128	024.288 025.088 024.081	Weather Observer Meteorologist Geophysicist		
		02	01	3.C.05-3	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Artificial Precursor Data Observer	2129	024.081	Geophysicist		
		02	01	3.C.05-4	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Topographical Precursor Data Observer	2130	018.188 024.081	Surveyor, Geodetic Geophysicist		
		02	01	3.C.05-5	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Precursor Disaster Data Observer	2131	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGEEO-5-04-3	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES			FPE: ES-1 Earth Observations			MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload EO-5			EXPERIMENT: 5.0 Natural Disaster Assessment			BASIC FUNCTION: 04 - Experiment Setup				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
4	(Continued)	11	01	3.C.05-1	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Geological Precursor Data Evaluator	2122	024.081 024.081	Geophysicist Geologist	
		11	01	3.C.05-2	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Meteorological Precursor Data Evaluator	2132	025.088 025.288 024.081	Meteorologist Weather Observer Geophysicist	
		11	01	3.C.05-3	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Artificial Precursor Data Evaluator	2133	024.081	Geophysicist	
		11	01	3.C.05-4	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Topographical Precursor Data Evaluator	2134	018.188 024.081	Surveyor, Geodetic Geophysicist	
		11	01	3.C.05-5	2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02 3.C.06	Precursor Disaster Data Evaluator	2135	024.081	Geophysicist	
		02	01	3.C.05-1	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Earthquake Data Observer	2123	024.081 024.081 018.188	Geologist Geophysicist Surveyor, Geodetic	
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-04-4

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	02	01	3.C.06-2	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Hurricane Data Observer	2136	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		02	01	3.C.05-3	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Tornado Data Observer	2137	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		02	01	3.C.06-4	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Tidal Wave Data Observer	2138	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		02	01	3.C.06-5	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Flood Data Observer	2139	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		02	01	3.C.06-6	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Volcanic Eruption Data Observer	2140	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic		
		02	01	3.C.06-7	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Forest Fire Data Observer	2141	024.081	Geophysicist		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	02	01	3.C.06-8	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Range Fire Data Observer	2142	024.081	Geophysicist		
		02	01	3.C.06-9	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Landslide Data Observer	2143	024.081	Geophysicist		
		02	01	3.C.06-10	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Snowslide Data Observer	2144	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		02	01	3.C.06-11	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Land Subsidence Data Observer	2145	024.081	Geophysicist		
		02	01	3.C.05-12	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Drought Data Observer	2146	024.081	Geophysicist		
		02	01	3.C.05-13	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Blizzard Data Observer	2147	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMM		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-04-5	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	11	01	3.C.06-1	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Earthquake Data Evaluator	2124	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-2	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Hurricane Data Evaluator	2148	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-3	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Tornado Data Evaluator	2149	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-4	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Tidal Wave Data Evaluator	2150	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-5	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Flood Data Evaluator	2151	024.081 025.288 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-6	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Volcanic Eruption Data Evaluator	2152	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMM		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-04-6	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
4	(Continued)	11	01	3.C.06-7	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Forest Fire Data Evaluator	2153	024.081	Geophysicist	
		11	01	3.C.06-8	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Range Fire Data Evaluator	2154	024.081	Geophysicist	
		11	01	3.C.06-9	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Landslide Data Evaluator	2155	024.081	Geophysicist	
		11	01	3.C.06-10	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Snowslide Data Evaluator	2056	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-11	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Land Subsidence Data Evaluator	2057	024.081	Geophysicist	
		11	01	3.C.06-12	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Drought Data Evaluator	2158	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-04-7
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	11	01	3.C.06-13	3.C.05 2.F.01-1 2.F.02-3 2.F.03-1 2.G.03-1 5.I.01 5.B.02	Blizzard Data Evaluator	2159	024.081 024.088 025.288	Geophysicist Meteorologist Weather Observer	EO-3	
		11	01	5.I.01	5.B.02 2.A.01-5 2.B.04-18	Meteorological Condition Evaluator	2057	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	6.A.01-1	5.A.01-2 6.A.01-3 5.L.02	Mission Events Evaluator	2058	xxx.xxx	Special Space Flight Skill		
5	Checkout experiment sensors	03	01	2.A.12-15	4.D.18	Radar Transmitter Inspector	0932	722.281	Inspector, Systems		
		03	01	2.A.12-17	4.D.18	Radar Receiver Inspector	0933	722.281	Inspector, Systems		
		03	01	2.A.17-3	4.D.18	Camera Inspector	0294	714.684	Camera Inspector		
		03	01	2.A.1704	4.D.18	Camera Inspector	0294	714.684	Camera Inspector		
		03	01	2.A.04-2	4.D.18	TV System Inspector	2059	722.281	Inspector, Systems		
		03	01	2.A.19-1	4.D.18	Scanner Inspector	0828	722.281	Inspector, Systems		
		03	01	2.A.19-2	4.D.18	Scanner Inspector	0828	722.281	Inspector, Systems		
		03	01	2.A.21-2	4.D.18	Radiometer Inspector	0829	722.281	Inspector, Systems		
		03	01	2.A.24	4.D.18	Sferics Detector Inspector	0832	722.281	Inspector, Systems		
		03	01	2.A.01-15	4.D.18	Telescope Inspector	0001	722.281	Inspector, Systems		
		14	01	2.B.04-6	2.A.17-3	Camera Tester	1448	003.181	Electrical Technician		
		14	01	2.B.04-12	2.A.1704	Camera Tester	1448	003.181	Electrical Technician		
		14	01	2.B.04-13	2.A.04-2	TV System Tester	2060	003.181	Electrical Technician		
		14	01	2.B.04-14	2.A.19-1	Scanner Tester	2061	003.181	Electrical Technician		
		14	01	2.B.04-4	2.A.19-2	Scanner Tester	2061	003.181	Electrical Technician		
		14	01	2.B.04-11	2.A.12-2	Radiometer Tester	0641	003.181	Electrical Technician		
		14	01	2.B.04-8	2.A.24	Sferics Detector Tester	2125	003.181	Electrical Technician		
		14	01	2.B.04-18	2.A.01-15	Telescope Tester	2126	003.181	Electrical Technician		
		14	01	2.B.04-15	2.A.12-16	Radar Transmitter Tester	0613	003.181	Electrical Technician		
		14	01	2.B.04-15	2.A.12-17	Radar Receiver Tester	0627	003.181	Electrical Technician		
6	Calibrate multispectral radiometer	08	01	2.B.04-11	2.A.21-2 4.C.01	Radiometer Calibrator	0837	710.884 003.181	Calibrator Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW			APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-5-04-8	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
10	Determine if standard sensors are adequate due to weather conditions	04	01	2.A.19-1	2.B.04-14 3.C.05 3.C.06 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081	Geophysicist		
		04	01	2.A.19-2	2.B.04-4 3.C.05 3.C.06 5.B.02 5.I.01	Scanner Adequacy Determiner	2088	024.081	Geophysicist		
		04	01	2.A.04-2	2.B.04-13 3.C.05 3.C.06 5.B.02 5.I.01	TV Camera Adequacy Determiner	2089	024.081	Geophysicist		
		04	01	2.A.21-2	2.B.04-11 3.C.05 3.C.06 5.B.02 5.I.01	Radiometer Adequacy Determiner	2090	024.081	Geophysicist		
		04	01	2.A.24	2.B.04-8 3.C.05 3.C.06 5.B.02 5.I.01	Sferics Detector Adequacy Determiner	2127	024.081	Geophysicist		
		04	01	2.A.01-5	2.B.04-18 2.B.09 3.C.02-2 3.C.03-2 3.C.04-2 5.B.02 5.I.01	Telescope Adequacy Determiner	2092	024.081	Geophysicist		
		04	01	2.A.17-3	2.B.04-6 2.B.09 2.A.27 3.C.05 3.C.06 5.B.02 5.I.01	Camera Adequacy Determiner	2093	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-04-9	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Natural Disaster Assessment				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
10	(Continued)	04	01	2.A.12-16	2.B.04-15 2.B.09 3.C.05 3.C.06 5.B.02 5.I.01	Radar Transmitter Adequacy Determiner	2112	024.081	Geophysicist		
		04	01	2.A.12-17	2.B.04-15 2.B.09 3.C.05 3.C.06 5.B.02 5.I.01	Radar Receiver Adequacy Determiner	2113	024.081	Geophysicist		
23	Unpackage instruments and sensors	18	01	2.A.01-6	4.D.20	Telescope Unstower	0303	003.281	Instrumentation Technician		
		18	01	2.A.04-2	4.D.20	TV Camera Unstower	0054	003.281	Instrumentation Technician		
		18	01	2.A.1703	4.D.20	Camera Unstower	0292	003.281	Instrumentation Technician		
		18	01	2.A.1704	4.D.20	Camera Unstower	0292	003.281	Instrumentation Technician		
		18	01	2.A.19-1	4.D.20	Scanner Unstower	0823	003.281	Instrumentation Technician		
		18	01	2.A.19-2	4.D.20	Scanner Unstower	0823	003.281	Instrumentation Technician		
		18	01	2.A.21-2	4.D.20	Radiometer Unstower	0642	003.281	Instrumentation Technician		
		18	01	2.A.24	4.D.20	Sferics Detector Unstower	0825	003.281	Instrumentation Technician		
		18	01	2.A.12-16	4.D.20	Radar Transmitter Unstower	0611	003.281	Instrumentation Technician		
		18	01	2.A.12-17	4.D.20	Radar Receiver Unstower	0628	003.281	Instrumentation Technician		
24	Load film in cameras	27	01	2.A.27-1	2.A.17-3 2.E.05 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
		27	01	2.A.27-2	2.A.17-4 2.E.06 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
		27	01	2.A.27-4	2.A.04-2 2.E.04 4.D.04	Film Cartridge Installer	0046	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-04-10	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
27	Shutdown sensors	16	01	2.B.04-15	2.A.12-16	Radar Transmitter Control Deactuator	0664	003.281	Instrumentation Technician	EO-2	
		16	01	2.B.04-15	2.A.12-17	Radar Receiver Control Deactuator	0666	003.281	Instrumentation Technician		
		16	01	2.B.04-6	2.A.17-3	Camera Control Deactuator	0848	003.281	Instrumentation Technician		
		16	01	2.B.04-12	2.A.17-4	Camera Control Deactuator	0848	003.281	Instrumentation Technician		
		16	01	2.B.04-13	2.A.04-2	TV System Control Deactuator	2068	003.281	Instrumentation Technician		
		16	01	2.B.04-14	2.A.19-1	Scanner Control Deactuator	0849	003.281	Instrumentation Technician		
		16	01	2.B.04-4	2.A.19-2	Scanner Control Deactuator	0849	003.281	Instrumentation Technician		
		16	01	2.B.04-11	2.A.21-2	Radiometer Control Deactuator	0673	003.281	Instrumentation Technician		
		16	01	2.B.04-8	2.A.24	Sferics Detector Control Deactuator	0853	003.281	Instrumentation Technician		
		16	01	2.B.04-18	2.A.01-5	Telescope Control Deactuator	0320	003.281	Instrumentation Technician		
28	Develop film	06	01	4.B.08	2.A.27-1	Film Processor	0328	976.782	Film Developer	EO-2	
					2.A.27-2						
		06	01	4.D.19	2.A.27-3	Film Processor	0328	976.782	Film Developer		
					2.A.27-5						
30	Clean and service optics	19	01	2.A.01-5	4.D.06	Telescope Optics Cleaner	0004	003.281	Instrumentation Technician	EO-2	
					4.D.18						
					2.C.13						
		19	01	2.A.17-3	4.D.06	Camera Optics Cleaner	0097	003.281	Instrumentation Technician		
					4.D.18						
					2.C.13						
		19	01	2.A.17-4	4.D.06	Camera Optics Cleaner	0097	003.281	Instrumentation Technician		
					4.D.18						
					2.C.13						
		19	01	2.A.19-1	4.D.06	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician		
					4.D.18						
					2.C.13						
19	01	2.A.21-2	4.D.06	Radiometer Optics Cleaner	0924	003.281	Instrumentation Technician				
			4.D.18								
			2.C.13								
19	01	2.A.24	4.D.06	Sferics Detector Optics Cleaner	0945	003.281	Instrumentation Technician				
			4.D.18								
			2.C.13								
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-05-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
30	(Continued)	19	01	2.A.19-2	4.D.06 4.D.18 2.C.13	Scanner Optics Cleaner	0884	003.281	Instrumentation Technician		
		19	01	2.A.04-2	4.D.06 4.D.18 2.C.13	TV Camera Optics Cleaner	0096	003.281	Instrumentation Technician		
32	Package data for earth return	17	01	2.A.27-1	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-2	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-3	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-4	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
		17	01	2.A.27-5	4.A.04 4.D.20 4.D.04-1	Film Stower	0852	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-05-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Observe settings on sensors	01	01	2.B.04-6	2.A.17-3	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-1	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.04-2	TV Camera Mode Monitor	0212	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2	Radiometer Mode Monitor	0644	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5	Telescope Mode Monitor	0942	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.17-4	Camera Mode Monitor	0204	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-2	Scanner Mode Monitor	0209	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-16	Radar Transmitter Mode Monitor	2103	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-17	Radar Receiver Mode Monitor	2104	003.281	Instrumentation Technician		
		01	01	2.B.04-8	2.A.24	Sferics Detector Mode Monitor	2118	003.281	Instrumentation Technician		
		2	Record bandsettings, look angles, exposures, filters, etc.	06	01	2.B.04-18	2.A.01-5	Telescope Mode Recorder	0943		003.281
2.A.15-1											
2.A.15-2											
2.F.02-3											
4.D.08-2											
06	01			2.B.04-13	4.D.10	TV Camera Mode Recorder	2045	003.281	Instrumentation Technician		
					2.A.04-2						
					2.A.15-1						
					2.A.15-2						
					2.F.02-3						
06	01			2.B.04-4	4.D.08-2	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					4.D.10						
					2.A.19-1						
					2.A.15-1						
					2.A.15-2						
06	01			2.B.04-14	2.F.02-3	Scanner Mode Recorder	2046	003.281	Instrumentation Technician		
					4.D.08-2						
					4.D.10						
					2.A.19-2						
					2.A.15-1						
06	01			2.B.04-11	2.A.15-2	Radiometer Mode Recorder	2047	003.281	Instrumentation Technician		
		2.F.02-3									
		4.D.08-2									
		4.D.10									
		2.A.21-2									
		2.A.15-1									
REVISION NO: REVISION DATE: PREPARED BY: JHL/GRH/EMW APPROVED BY: GRH SERIES ES-1-A PAGE EO-5-06-1											

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	06	01	2.B.04-8	2.A.24 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Sferics Detector Mode Recorder	2119	003.281	Instrumentation Technician		
		06	01	2.B.04-15	2.A.12-16 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Radar Transmitter Mode Recorder	2105	003.281	Instrumentation Technician		
		06	01	2.B.04-15	2.A.12-17 2.A.15-1 2.A.15-2 2.F.02-3 4.D.0802 4.D.10	Radar Receiver Mode Recorder	2106	003.281	Instrumentation Technician		
		06	01	2.B.04-12	2.A.17-4 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Camera Mode Recorder	2120	003.281	Instrumentation Technician		
		06	01	2.B.04-6	2.A.17-3 2.A.15-1 2.A.15-2 2.F.02-3 4.D.08-2 4.D.10	Camera Mode Recorder	2120	003.281	Instrumentation Technician		
3	Observe film remaining status	01	01	2.B.04-6	2.A.27-1	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.27-3	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.27-2	Camera Status Monitor	2050	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.27-4	TV Camera Status Monitor	2052	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.27-5	Camera Status Monitor	2050	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-5-06-2	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	Identify precursors to natural disasters	02	01	2.B.04-13	2.A.04-2	TV Presentation Observer	0896	024.081	Geophysicist		
					3.C.05-1						
					3.C.05-2						
					3.C.05-3						
					3.C.05-4						
					3.C.05-5						
					3.C.06						
					2.A.19-1	Scanner Presentation Observer	0897	024.081	Geophysicist		
3.C.05-1											
3.C.05-2											
3.C.05-3											
3.C.05-4											
					3.C.05-5						
					3.C.06						
					2.A.10-2	Scanner Presentation Observer	0897	024.081	Geophysicist		
3.C.05-1											
3.C.05-2											
3.C.05-3											
3.C.05-4											
					3.C.05-5						
					3.C.06						
					2.A.12-17	Radar Presentation Observer	0934	024.081	Geophysicist		
2.A.12-16											
3.C.05-1											
3.C.05-2											
3.C.05-3											
					3.C.05-4						
					3.C.05-5						
					3.C.06						
					2.A.21-2	Radiometer Presentation Observer	0898	024.081	Geophysicist		
3.C.05-1											
3.C.05-2											
3.C.05-3											
3.C.05-4											
					3.C.05-5						
					3.C.06						

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE E0-5-06-3
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	(Continued)	02	01	2.B.04-8	2.A.24	Sferics Detector Presentation Observer	0937	024.081	Geophysicist		
					3.C.05-1						
					3.C.05-2						
					3.C.05-3						
		02	01	2.B.09	3.C.05-4	Telescope Presentation Observer	0895	024.081	Geophysicist		
					3.C.05-5						
					3.C.06						
					2.A.01-5						
		02	01	3.C.05-1	2.B.04-18	Geological Precursor Observer	2160	024.081 024.081	Geophysicist Geologist		
					3.C.05-1						
					3.C.05-2						
					3.C.05-3						
02	01	3.C.05-2	3.C.05-4	Meteorological Precursor Observer	2161	024.088 024.081	Meteorologist Geophysicist				
			3.C.05-5								
			3.C.06								
			5.I.01								
					5.B.02						
					2.B.04						
					2.A.19-1						
					2.A.19-2						
					2.A.12-16						
					2.A.12-17						
					2.A.21-2						
					2.A.24						
					2.A.01-5						
					2.B.09						
					3.C.06						
					5.I.01						
					5.B.02						
					2.B.04						
					2.A.19-1						
					2.A.19-2						
					2.A.12-16						
					2.A.12-17						
					2.A.21-2						
					2.A.24						
					2.A.01-5						
					2.B.09						

REVISION NO:

REVISION DATE:

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SERIES ES-1-A

PAGE E0-5-06-4

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	(Continued)	02	01	3.C.05-3	3.C.06	Artificial Precursor Observer	2162	024.081	Geophysicist		
					5.I.01						
					5.B.02						
			2.B.04	Topographical Precursor Observer	2163	024.081	Geophysicist				
			2.A.19-1								
			2.A.19-2								
			2.A.12-16	Precursor Disasters Observer	2164	024.081	Geophysicist				
			2.A.12-17								
			2.A.21-2								
	2.A.24	3.C.05-5									
	2.A.01-5										
	2.B.09										
	3.C.06										
	5.I.01										
	5.B.02										
		2.B.04									
	2.A.19-1										
	2.A.19-2										
		2.A.12-16									
	2.A.12-17										
	2.A.21-2										
		2.A.24									
	2.A.01-5										
	2.B.09										

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMM	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-5
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
9	(Continued)	04	01	3.C.05-1	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Geological Precursor Classifier	2165	024.081 024.081	Geophysicist Geologist	
		04	01	3.C.05-2	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Meteorological Precursor Classifier	2166	025.088 024.081	Meteorologist Geophysicist	
		04	01	3.C.05-3	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Artificial Precursor Classifier	2167	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-6
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	(Continued)	04	01	3.C.05-4	3.C.06 5.I.01 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Topographical Precursor Classifier	2168	024.081	Geophysicist		
		04	01	3.C.05-5	2.B.09 3.C.06 5.I.01 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Precursor Disasters Classifier	2169	024.081	Geophysicist		
		04	01	2.B.04-13	2.B.09 2.A.04-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5	TV Data Classifier	2076	024.081	Geophysicist		
		04	01	2.B.04-14	3.C.06 2.A.19-1 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Data Classifier	2077	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMM		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	(Continued)	04	01	2.B.04-4	2.A.19-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Data Classifier	2077	024.081	Geophysicist		
		04	01	2.B.04-15	2.A.12-17 2.A.12-16 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radar Data Classifier	2109	024.081	Geophysicist		
		04	01	2.B.04-11	2.A.21-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radiometer Data Classifier	2078	024.081	Geophysicist		
		04	01	2.B.04-8	2.A.24 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Sferics Detector Data Classifier	2170	024.081	Geophysicist		
		04	01	2.B.09	2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Telescope Data Classifier	2110	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-8	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	Detect incipient disasters	02	01	2.B.04-13	2.A.04-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	TV Presentation Observer	0896	024.081	Geophysicist		
		02	01	2.B.04-14	2.A.19-1 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Presentation Observer	0897	024.081	Geophysicist		
		02	01	2.B.04-4	2.A.19-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Presentation Observer	0897	024.081	Geophysicist		
		02	01	2.B.04-15	2.A.12-17 2.A.12-16 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radar Presentation Observer	0934	024.081	Geophysicist		
		02	01	2.B.04-11	2.A.21-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radiometer Presentation Observer	0898	024.081	Geophysicist		
		02	01	2.B.04-8	2.A.24 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Sferics Detector Presentation Observer	0937	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMM			APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-5-06-9	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	02	01	2.B.09	2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Telescope Presentation Observer	0895	024.081	Geophysicist		
		02	01	3.C.05-1	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Geological Precursor Observer	2160	024.081	Geophysicist		
		02	01	3.C.05-2	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Meteorological Precursor Observer	2161	024.081	Geophysicist		
		02	01	3.C.05-3	3.C.05 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Artificial Precursor Observer	2162	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		2.B.09		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-5-06-10



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
11	(Continued)	02	01	3.C.05-4	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Topographical Precursor Observer	2163	024.081	Geophysicist	
		02	01	3.C.05-5	2.B.09 3.C.05 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Precursor Disasters Observer	2164	024.081	Geophysicist	
		04	01	3.C.05-1	2.B.09 3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Geological Precursor Classifier	2165	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-36-11
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	04	01	3.C.05-1	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Meteorological Precursor Classifier	2166	024.081	Geophysicist		
		04	01	3.C.05-3	3.C.05 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Artificial Precursor Classifier	2167	024.081	Geophysicist		
		04	01	3.C.05-4	2.B.09 3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Topographical Precursor Classifier	2168	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-12	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
11	(Continued)	04	01	3.C.05-5	3.C.06 5.I.01 5.B.02 2.B.04 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Precursor Disaster Classifier	2169	024.081	Geophysicist	
		04	01	2.B.04-13	2.A.04-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	TV Data Classifier	2076	024.081	Geophysicist	
		04	01	2.B.04-14	2.A.19-1 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.B.04-4	2.A.19-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Scanner Data Classifier	2077	024.081	Geophysicist	
		04	01	2.B.04-15	2.A.12-17 2.A.12-16 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radar Data Classifier	2109	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMM	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-13
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	04	01	2.B.04-11	2.A.21-2 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Radiometer Data Classifier	2078	024.081	Geophysicist		
		04	01	2.B.04-8	2.A.24 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Sferics Detector Data Classifier	2170	024.081	Geophysicist		
		04	01	2.B.09	2.A.01-5 2.B.04-18 3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 3.C.06	Telescope Data Classifier	2010	024.081	Geophysicist		
		13	01	3.C.06-1	3.C.05-1 3.C.05-3 3.C.05-4 2.B.04 2.B.09	Earthquake Disaster Predictor	2171	024.081	Geophysicist		
		13	01	3.C.06-2	3.C.05-2 3.C.05-3 3.C.05-4 2.B.04 2.B.09	Hurricane Disaster Predictor	2172	024.081	Geophysicist		
		13	01	3.C.06-3	3.C.05-2 3.C.05-3 3.C.05-4 2.B.04 2.B.09	Tornado Disaster Predictor	2173	024.081	Geophysicist		

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE E0-5-06-14
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	13	01	3.C.06-4	3.C.05-3 3.C.05-4 3.C.05-5 2.B.04 2.B.09	Tidal Wave Disaster Predictor	2174	024.081	Geophysicist		
		13	01	3.C.06-5	3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04 2.B.09	Flood Disaster Predictor	2175	024.081	Geophysicist		
		13	01	3.C.06-6	3.C.05-1 3.C.05-3 3.C.05-4 2.B.04 2.B.09	Volcanic Eruption Disaster Predictor	2176	024.081	Geophysicist		
		13	01	3.C.06-7	3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04 2.B.09	Forest Fire Disaster Predictor	2177	024.081	Geophysicist		
		13	01	3.C.06-8	3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04 2.B.09	Range Fire Disaster Predictor	2178	024.081	Geophysicist		
		13	01	3.C.05-9	3.C.05-1 3.C.05-2 3.C.05-3 3.C.05-4 3.C.05-5 2.B.04 2.B.09	Landslide Disaster Predictor	2179	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-15	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	13	01	3.C.06-10	3.C.05-1	Snowslide Disaster Predictor	2080	024.081	Geophysicist		
					3.C.05-2						
					3.C.05-3						
					3.C.05-4						
					3.C.05-5						
					2.B.04						
					2.B.09						
		13	01	3.C.06-11	3.C.05-1	Land Subsidence Disaster Predictor	2181	024.081	Geophysicist		
	3.C.05-3										
	3.C.05-4										
	3.C.05-5										
					2.B.04						
					2.B.09						
		13	01	3.C.06-12	3.C.05-2	Drought Disaster Predictor	2182	024.081	Geophysicist		
	3.C.05-4										
	2.B.04										
	2.B.09										
		13	01	3.C.06-13	3.C.05-2	Blizzard Disaster Predictor	2183	024.081	Geophysicist		
	3.C.05-3										
	3.C.05-4										
	2.B.04										
					2.B.09						
12	Place sensors in operation in desired mode	15	01	2.B.04-6	2.A.17-3	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-13	2.A.04-2	TV Camera Control Actuator	0899	003.281	Instrumentation Technician		
		15	01	2.B.04-14	2.A.19-1	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-16	Radar Transmitter Control Actuator	0935	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.19-2	Scanner Control Actuator	0842	003.281	Instrumentation Technician		
		15	01	2.B.04-15	2.A.12-17	Radar Receiver Control Actuator	0936	003.281	Instrumentation Technician		
		15	01	2.B.04-11	2.A.21-2	Radiometer Control Actuator	0843	003.281	Instrumentation Technician		
		15	01	2.B.04-8	2.A.24	Sferics Detector Control Actuator	0845	003.281	Instrumentation Technician		
		15	01	2.B.04-18	2.A.01-5	Telescope Control Actuator	0846	003.281	Instrumentation Technician		
13	Select data collection mode	13	01	2.B.04-6	2.A.17-3	Camera Mode Selector	0271	003.181 024.081	Electrical Technician Geophysicist		
					3.C.05 3.C.06						
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-16	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
13	(Continued)	13	01	2.B.04-12	2.A.17-4 3.C.05 3.C.06	Camera Mode Selector	0271	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-13	2.A.04-2 3.C.05 3.C.06	TV Camera Mode Selector	2184	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-14	2.A.19-1 3.C.05 3.C.06	Scanner Mode Selector	0916	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-4	2.A.19-2 3.C.05 3.C.06	Scanner Mode Selector	0916	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-15	2.A.12-16 3.C.05 3.C.06	Radar Transmitter Mode Selector	0938	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-15	2.A.12-17 3.C.05 3.C.06	Radar Receiver Mode Selector	0939	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-11	2.A.21-2 3.C.05 3.C.06	Radiometer Mode Selector	0917	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-8	2.A.24 3.C.05 3.C.06	Sferics Detector Mode Selector	0940	003.181 024.081	Electrical Technician Geophysicist		
		13	01	2.B.04-18	2.A.01-5 3.C.05 3.C.06	Telescope Mode Selector	0265	003.181 024.081	Electrical Technician Geophysicist		
14	Monitor data collection process	01	01	2.B.04-6	2.A.17-3 2.F.01 2.F.03	Camera Operation Monitor	1344	003.281	Instrumentation Technician		
		01	01	2.B.04-12	2.A.17-4 2.F.01 2.F.03	Camera Operation Monitor	1344	003.281	Instrumentation Technician		
		01	01	2.B.04-13	2.A.04-2 2.F.01 2.F.03	TV System Operation Monitor	2094	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-1 2.F.01 2.F.03	Scanner Operation Monitor	2095	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-17	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	(Continued)	01	01	2.B.04-4	2.A.19-2 2.F.01 2.F.03	Scanner Operation Monitor	2095	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-16 2.F.01 2.F.03	Radar Transmitter Operation Monitor	0812	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-17 2.F.01 2.F.03	Radar Receiver Operation Monitor	2185	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2 2.F.01 2.F.03	Radiometer Operation Monitor	2096	003.281	Instrumentation Technician		
		01	01	2.B.04-8	2.A.24 2.F.01 2.F.03	Sferics Detector Operation Monitor	2186	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5 2.F.01 2.F.03	Telescope Operation Monitor	2099	003.281	Instrumentation Technician		
15	Record global distribution of thunderstorm activity	02	01	3.C.05-2	2.B.04 5.I.01 5.B.02 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Meteorological Precursor Observer	2161	025.088 024.081	Meteorologist Geophysicist		
		04	01	3.C.05-2	2.B.04 5.I.01 5.B.02 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.B.09	Meteorological Precursor Classifier	2166	025.088 024.081	Meteorologist Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-18	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
15	(Continued)	04	01	2.B.04-13	2.A.04-2	TV Data Classifier	2076	024.081	Geophysicist		
					3.C.05-2						
		04	01	2.B.04-14	2.A.19-1	Scanner Data Classifier	2077	024.081	Geophysicist		
					3.C.05-2						
		04	01	2.B.04-4	2.A.19-2	Scanner Data Classifier	2077	024.081	Geophysicist		
					3.C.05-2						
		04	01	2.B.04-15	2.A.12-17	Radar Data Classifier	2109	024.081	Geophysicist		
					2.A.12-16						
					3.C.05-2						
		04	01	2.B.04-11	2.A.21-2	Radiometer Data Classifier	2078	024.081	Geophysicist		
					3.C.05-2						
		04	01	2.B.04-8	2.A.24	Sferics Detector Data Classifier	2170	024.081	Geophysicist		
					3.C.05-2						
		04	01	2.B.09	2.A.01-5	Telescope Data Classifier	2010	024.081	Geophysicist		
					2.B.04-18						
					3.C.05-2						
		15	01	2.B.04-6	2.A.17-3	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-12	2.A.17-4	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.04-13	2.A.04-2	Recorder Control Actuator	2187	003.281	Instrumentation Technician		
15	01	2.B.04-14	2.A.19-1	Recorder Control Actuator	2187	003.281	Instrumentation Technician				
15	01	2.B.04-4	2.A.19-2	Recorder Control Actuator	2187	003.281	Instrumentation Technician				
15	01	2.B.04-15	2.A.12-16	Recorder Control Actuator	2187	003.281	Instrumentation Technician				
			2.A.12-17								
15	01	2.B.04-11	2.A.21-2	Recorder Control Actuator	2187	003.281	Instrumentation Technician				
15	01	2.B.04-8	2.A.24	Recorder Control Actuator	2187	003.281	Instrumentation Technician				
15	01	2.B.04-18	2.A.01-5	Camera Control Actuator	0245	003.281	Instrumentation Technician				
16	Perform surveillance of potential wildfire areas	02	01	3.C.05-2	3.C.05-3	Meteorological Precursor Observer	2161	024.088 024.081	Meteorologist Geophysicist		
					3.C.05-4						
					3.C.05-5						
					3.C.06-7						
					3.C.06-8						
					2.B.04						
					2.B.09						
					2.A.04-2						
					2.A.19-1						
					2.A.19-2						
					2.A.21-2						
					2.A.24						
					2.A.01-5						
					2.C.01-1						

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-19
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## FLIGHT EXPERIMENT TASK / SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
16	(Continued)	02	01	3.C.05-3	3.C.05-2 3.C.05-4 3.C.05-5 3.C.06-7 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1	Artificial Precursor Observer	2162	024.081	Geophysicist	
		02	01	3.C.05-4	3.C.05-2 3.C.05-3 3.C.05-5 3.C.06-7 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1	Topographical Precursor Observer	2163	024.081	Geophysicist	
		02	01	3.C.05-5	3.C.05-2 3.C.05-3 3.C.05-4 3.C.06-7 3.C.06-8 2.B.04 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1	Precursor Disaster Observer	2164	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMM	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-20
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	Review data collected for quality and usefulness	11	01	3.C.05-1	3.C.06-1 3.C.06-6 3.C.06-9 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Geological Precursor Data Evaluator	2122	024.081	Geophysicist		
		11	01	3.C.05-2	2.A.01-5 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-12 3.C.06-13 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Meteorological Precursor Data Evaluator	2132	025.288 025.088 024.081	Weather Observer Meteorologist Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-5-06-21	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	(Continued)	11	01	3.C.05-3	3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Artificial Precursor Data Evaluator	2133	024.081	Geophysicist		
		11	01	3.C.05-4	2.A.01-5 3.C.06-1 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-9 3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Topographical Precursor Data Evaluator	2134	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-22	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	(Continued)	11	01	3.C.05-5	3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Precursor Disasters Data Evaluator	2135	024.081	Geophysicist		
		11	01	3.C.05-1	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Earthquake Data Evaluator	2124	024.081 024.081 018.188	Geologist Geophysicist Surveyor, Geodetic		
		11	01	3.C.06-2	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Hurricane Data Evaluator	2148	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-23	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	(Continued)	11	01	3.C.06-3	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Tornado Data Evaluator	2149	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-4	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Tidal Wave Data Evaluator	2150	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		11	01	3.C.06-5	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Flood Data Evaluator	2151	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-24	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	(Continued)	11	01	3.C.06-6	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Volcanic Eruption Data Evaluator	2152	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic		
		11	01	3.C.06-7	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Forest Fire Data Evaluator	2153	024.081	Geophysicist		
		11	01	3.C.06-8	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Range Fire Data Evaluator	2154	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-25	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	(Continued)	11	01	3.C.06-9	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Landslide Data Evaluator	2155	024.081	Geophysicist		
		11	01	3.C.06-10	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Snowslide Data Evaluator	2156	024.081	Geophysicist		
		11	01	3.C.06-11	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Land Subsidence Data Evaluator	2157	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-26	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	(Continued)	11	01	3.C.06-12	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Drought Data Evaluator	2158	024.081	Geophysicist		
		11	01	3.C.06-13	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Blizzard Data Evaluator	2159	024.081 025.089 025.288	Geophysicist Meteorologist Weather Observer		
18	Identify Irrelevant data	04	01	3.C.05-1	3.C.06-1 3.C.06-6 3.C.06-9 2.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Geological Precursor Data Classifier	2188	024.081 024.081	Geophysicist Geologist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-27	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
18	(Continued)	04	01	3.C.05-2	3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-12 3.C.06-13 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Meteorological Precursor Data Classifier	2189	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		04	01	3.C.05-3	2.A.01-5 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Artificial Precursor Data Classifier	2190	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-28	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES			FPE: ES-1 Earth Observations			MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload EO-5			EXPERIMENT: 5.0 Disaster Assessment			BASIC FUNCTION: 06 - Experiment Conduct				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
18	(Continued)	04	01	3.C.05-4	3.C.06-1 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-9 3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Topographical Precursor Data Classifier	2191	024.081	Geophysicist	
		04	01	3.C.05-5	2.A.01-5 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Precursor Disasters Data Classifier	2192	024.081	Geophysicist	
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-5-06-29	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES			FPE: ES-1 Earth Observations			MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload E0-6			EXPERIMENT: 5.0 Disaster Assessment			BASIC FUNCTION: 06 - Experiment Conduct		

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
18	(Continued)	04	01	3.C.06-1	2.F.03-2	Earthquake Data Classifier	2193	024.081 024.081 018.188	Geophysicist Geologist Surveyor, Geodetic	
					2.F.03-3					
					2.A.27-4					
					2.B.09					
					2.A.04-2					
					2.A.19-1					
					2.A.19-2					
					2.A.12-16					
					2.A.12-17					
					2.A.21-2					
					2.A.24					
		04	01	3.C.06-2	2.A.01-5	Hurricane Data Classifier	2194	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
	2.F.03-2									
	2.F.03-3									
					2.A.27-4					
					2.B.09					
					2.A.04-2					
					2.A.19-1					
					2.A.19-2					
					2.A.12-16					
					2.A.12-17					
					2.A.21-2					
					2.A.24					
		04	01	3.C.06-3	2.A.01-5	Tornado Data Classifier	2195	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
	2.F.03-2									
	2.F.03-3									
					2.A.27-4					
					2.B.09					
					2.A.04-2					
					2.A.19-1					
					2.A.19-2					
					2.A.12-16					
					2.A.12-17					
					2.A.21-2					
					2.A.24					
					2.A.01-5					

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE E0-5-06-30
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
18	(Continued)	04	01	3.C.06-4	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Tidal Wave Data Classifier	2196	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		04	01	3.C.06-5	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Flood Data Classifier	2197	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
		04	01	3.C.06-6	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Volcanic Eruption Data Classifier	2198	024.081 024.088 018.188	Geophysicist Geologist Surveyor, Geodetic		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-31	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
18	(Continued)	04	01	3.C.06-7	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Forest Fire Data Classifier	2199	024.081	Geophysicist	
		04	01	3.C.06-8	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Range Fire Data Classifier	2200	024.081	Geophysicist	
		04	01	3.C.06-9	2.A.01-5 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Landslide Data Classifier	2201	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-32
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload E0-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
18	(Continued)	04	01	3.C.06-10	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Snowslide Data Classifier	2202	024.081	Geophysicist		
		04	01	3.C.06-11	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Land Subsidence Data Classifier	2203	024.081	Geophysicist		
		04	01	3.C.06-12	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Drought Data Classifier	2204	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-5-06-33	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
18	(Continued)	04	01	3.C.06-13	2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Blizzard Data Classifier	2205	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer		
20	Evaluate photographic/ cartographic quality of data	11	01	3.C.05-1	2.C.01-1 3.C.06-1 3.C.06-6 3.C.06-9 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Geological Precursor Data Evaluator	2122	024.081	Geophysicist		
		11	01	3.C.05-2	2.C.01-1 3.C.06-2 3.C.06-3 3.C.06-4 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-12	Meteorological Precursor Data Evaluator	2132	025.288 025.088 024.081	Weather Observer Meteorologist Geophysicist		

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REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-34
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES			FPE: ES-1 Earth Observations			MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload E0-5			EXPERIMENT: 5.0 Disaster Assessment			BASIC FUNCTION: 06 - Experiment Conduct				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
20	(Continued)	11	01	3.C.05-3	Continued from previous page 3.C.06-13 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5 2.C.01-1 3.C.06-5 3.C.06-7 3.C.06-8 3.C.06-9 3.C.06-10 3.C.06-11 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Artificial Precursor Data Evaluator	2133	024.081	Geophysicist	
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE E0-5-06-35

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
20	(Continued)	11	01	3.C.05-4	2.C.01-1	Topographical Precursor Data Evaluator	2134	024.081	Geophysicist		
					3.C.06-1						
3.C.06-2											
3.C.06-3											
3.C.06-4											
3.C.06-5											
3.C.06-9											
3.C.06-10											
3.C.06-11											
2.F.03-2											
2.F.03-3											
2.A.27-4											
2.B.09											
2.A.04-2											
2.A.19-1											
2.A.19-2											
2.A.12-16											
2.A.12-17											
2.A.21-2	Precursor Disasters Data Evaluator	2135	024.081	Geophysicist							
2.A.24											
2.A.01-5											
2.C.01-1											
3.C.06-3											
3.C.06-4											
3.C.06-5											
3.C.06-7											
3.C.06-8											
3.C.06-9											
3.C.06-10											
2.F.03-2											
2.F.03-3											
2.A.27-4											
2.B.09											
2.A.04-2											
2.A.19-1											
2.A.19-2											
2.A.12-16											
2.A.12-17											
2.A.21-2											
2.A.24											
2.A.01-5											

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-36
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## FLIGHT EXPERIMENT TASK /SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lay Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
20	(Continued)	11	01	3.C.06-1	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Earthquake Data Evaluator	2124	024.081 024.081 018.188	Geologist Geophysicist Surveyor Geodetic	
		11	01	3.C.06-2	2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Hurricane Data Evaluator	2148	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
		11	01	3.C.06-3	2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Tornado Data Evaluator	2149	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-37
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
20	(Continued)	11	01	3.C.06-4	2.C.01-1	Tidal Wave Data Evaluator	2150	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
					2.F.03-2					
					2.F.03-3					
					2.A.27-4					
					2.B.09					
					2.A.04-2					
					2.A.19-1					
					2.A.19-2					
					2.A.12-16					
					2.A.12-17					
					2.A.21-2					
					2.A.24					
		11	01	3.C.06-5	2.A.01-5	Flood Data Evaluator	2151	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
	2.C.01-1									
	2.F.03-2									
					2.F.03-3					
					2.A.27-4					
					2.B.09					
					2.A.04-2					
					2.A.19-1					
					2.A.19-2					
					2.A.12-16					
					2.A.12-17					
					2.A.21-2					
					2.A.24					
		11	01	3.C.06-6	2.A.01-5	Volcanic Eruption Data Evaluator	2152	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	
	2.C.01-1									
	2.F.03-2									
					3.F.03-3					
					2.A.27-4					
					2.B.09					
					2.A.04-2					
					2.A.19-1					
					2.A.19-2					
					2.A.12-16					
					2.A.12-17					
					2.A.21-2					
					2.A.24					
					2.A.01-5					

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-38
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
20	(Continued)	11	01	3.C.06-7	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Forest Fire Data Evaluator	2153	024.081	Geophysicist	
		11	01	3.C.06-8	2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Range Fire Data Evaluator	2154	024.081	Geophysicist	
		11	01	3.C.06-9	2.A.01-5 2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Landslide Data Evaluator	2155	024.081	Geophysicist	

REVISION NO:	REVISION DATE:	PREPARED BY: JHL/GRH/EMW	APPROVED BY: GRH	SERIES ES-1-A	PAGE EO-5-06-39
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
20	(Continued)	11	01	3.C.06-10	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Snowslide Data Evaluator	2156	024.081	Geophysicist		
		11	01	3.C.06-11	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24	Land Subsidence Data Evaluator	2157	024.081	Geophysicist		
		11	01	3.C.06-12	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Drought Data Evaluator	2158	024.081	Geophysicist		
REVISION NO:		REVISION DATE:			PREPARED BY: JHL/GRH/EMM			APPROVED BY: GRH		SERIES ES-1-A	PAGE EO-5-06-40

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
20	(Continued)	11	01	3.C.06-13	2.C.01-1 2.F.03-2 2.F.03-3 2.A.27-4 2.B.09 2.A.04-2 2.A.19-1 2.A.19-2 2.A.12-16 2.A.12-17 2.A.21-2 2.A.24 2.A.01-5	Blizzard Data Evaluator	2159	024.081 025.088 025.288	Geophysicist Meteorologist Weather Observer	E0-2	
21	Identify forest fire locations in photographs	02	01	3.C.06-7	2.F.01-1 3.C.05 2.C.01-1 5.I.01 5.B.02	Forest Fire Data Observer	2141	024.081	Geophysicist		
		04	01	3.C.06-7	2.F.01-1 3.C.05 2.C.01-1 5.I.01 5.B.02	Forest Fire Data Classifier	2199	024.081	Geophysicist		
22	Describe disaster process and location to ground services	05	01	4.A.02	3.C.05 3.C.06	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.C.05-1	3.C.05 2.C.01-1 4.A.02	Geological Precursor Communicator	2206	024.081	Geophysicist		
		05	01	3.C.05-2	3.C.05 2.C.01-1 4.A.02	Meteorological Precursor Communicator	2207	024.081 025.088	Geophysicist Meteorologist		
		05	01	3.C.05-3	3.C.05 2.C.01-1 4.A.02	Artificial Communicator	2208	024.081	Geophysicist		
		05	01	3.C.05-4	3.C.05 2.C.01-1 4.A.02	Topographical Communicator	2209	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: JHL/GRH/EMW		SERIES ES-1-A		PAGE EO-5-06-41	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
22	(Continued)	05	01	3.C.05-5	3.C.06 2.C.01-1 4.A.02	Precursor Disaster Communicator	2210	024.081	Geophysicist		
		05	01	3.C.06-1	3.C.05 4.A.02 2.C.01-1	Earthquake Disaster Communicator	2211	024.081	Geophysicist		
		05	01	3.C.06-2	3.C.05 4.A.02 2.C.01-1	Hurricane Disaster Communicator	2212	024.081	Geophysicist		
		05	01	3.C.06-3	3.C.05 4.A.02 2.C.01-1	Tornado Disaster Communicator	2213	024.081	Geophysicist		
		05	01	3.C.06-4	3.C.05 4.A.02 2.C.01-1	Tidal Wave Disaster Communicator	2214	024.081	Geophysicist		
		05	01	3.C.06-5	3.C.05 4.A.02 2.C.01-1	Flood Disaster Communicator	2215	024.081	Geophysicist		
		05	01	3.C.06-6	3.C.05 4.A.02 2.C.01-1	Volcanic Eruption Disaster Communicator	2216	024.081	Geophysicist		
		05	01	3.C.06-7	3.C.05 4.A.02 2.C.01-1	Forest Fire Disaster Communicator	2217	024.081	Geophysicist		
		05	01	3.C.06-8	3.C.05 4.A.02 2.C.01-1	Range Fire Disaster Communicator	2218	024.081	Geophysicist		
		05	01	3.C.06-9	3.C.05 4.A.02 2.C.01-1	Landslide Disaster Communicator	2219	024.081	Geophysicist		
		05	01	3.C.06-10	3.C.05 4.A.02 2.C.01-1	Snowslide Disaster Communicator	2220	024.081	Geophysicist		
		05	01	3.C.06-11	3.C.05 4.A.02 2.C.01-1	Land Subsidence Disaster Communicator	2221	024.081	Geophysicist		
		05	01	3.C.06-12	3.C.05 4.A.02 2.C.01-1	Drought Disaster Communicator	2222	024.081	Geophysicist		
05	01	3.C.06-13	3.C.05 4.A.02 2.C.01-1	Blizzard Disaster Communicator	2223	024.081	Geophysicist				
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-42	



# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	Acquire disaster sites with observation telescope	10	01	2.B.08	3.C.06 2.A.01-5 2.B.04-18 3.C.05 2.B.09 4.B.01-3	Telescope Pointing Controller	0921	XXX.XXX	Special Spaceflight Skill	EO-3	
		04	01	3.C.06-1	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Earthquake Disaster Identifier	2224	024.081	Geophysicist		
		04	01	3.C.06-2	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Hurricane Disaster Identifier	2225	024.081	Geophysicist		
		04	01	3.C.06-3	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Hurricane Disaster Identifier	2226	024.081	Geophysicist		
		04	01	3.C.06-4	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Tidal Wave Disaster Identifier	2227	024.081	Geophysicist		
		04	01	3.C.06-5	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Flood Disaster Identifier	2228	024.081	Geophysicist		
		04	01	3.C.06-6	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Volcanic Eruption Disaster Identifier	2229	024.081	Geophysicist		
		04	01	3.C.06-7	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Forest Fire Disaster Identifier	0941	024.081	Geophysicist		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-43	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	(Continued)	04	01	3.C.06-8	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Range Fire Disaster Identifier	2230	024.081	Geophysicist		
		04	01	3.C.06-9	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Landslide Disaster Identifier	2231	024.081	Geophysicist		
		04	01	3.C.06-10	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Snowslide Disaster Identifier	2232	024.081	Geophysicist		
		04	01	3.C.06-11	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Land Subsidence Disaster Identifier	2233	024.081	Geophysicist		
		04	01	3.C.06-12	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Drought Disaster Identifier	2234	024.081	Geophysicist		
		04	01	3.C.06-13	2.B.09 3.C.05 2.A.01-5 2.B.04-18 4.B.01-3	Blizzard Disaster Identifier	2235	024.081	Geophysicist		
26	Monitor sensor output electronic quality	01	01	2.B.04013	2.A.04-2	TV Data Quality Monitor	0922	003.281	Instrumentation Technician		
		01	01	2.B.04-14	2.A.19-1	Scanner Data Quality Monitor	0869	003.281	Instrumentation Technician		
		01	01	2.B.04-4	2.A.19-2	Scanner Data Quality Monitor	0869	003.281	Instrumentation Technician		
		01	01	2.B.04-15	2.A.12-16 2.A.12-17	Radar Data Quality Monitor	0944	003.281	Instrumentation Technician		
		01	01	2.B.04-11	2.A.21-2	Radiometer Data Quality Monitor	0870	003.281	Instrumentation Technician		
		01	01	2.B.04-8	2.A.24	Sferics Detector Data Quality Monitor	0882	003.281	Instrumentation Technician		
		01	01	2.B.04-18	2.A.01-5	Telescope Data Quality Monitor	2236	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-06-44	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note EO-1)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
7	Repair/replace any malfunctioning components	26	01	2.A.19-2	2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician		
		26	01	2.A.17-3	2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.17-4	2.C.13 4.D.18	Camera Module Remover	0158	007.081 003.181	Optical Technician Electrical Technician		
		26	01	2.A.12-16	2.C.13 4.D.18	Radar Transmitter Module Remover	0615	003.181	Electrical Technician		
		26	01	2.A.12-17	2.C.13 4.D.18	Radar Receiver Module Remover	0624	003.181	Electrical Technician		
		26	01	2.A.19-1	2.C.13 4.D.18	Scanner Module Remover	0904	003.181	Electrical Technician		
		26	01	2.A.21-2	2.C.13 4.D.18	Radiometer Module Remover	0638	003.181	Electrical Technician		
		26	01	2.A.24	2.C.13 4.D.18	Sferics Detector Module Remover	0946	003.181	Electrical Technician		
		26	01	2.A.04-2	2.C.13 4.D.18	TV System Module Remover	0345	003.181 007.081	Electrical Technician Optical Technician		
		26	01	2.A.01-5	2.C.13 4.D.18	Telescope Module Remover	0187	003.181 007.081	Electrical Technician Optical Technician		
		26	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	828.281 003.181	Electronics Mechanic Electrical Technician		
		26	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-15	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-8	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		26	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Remover	0926	003.181	Electrical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
7	(Continued)	27	01	2.B.04-6	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-12	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-13	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-15	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-14	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-11	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-8	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-18	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.B.04-4	2.C.13 4.D.18	Earth Survey C/D Equipment Module Installer	0927	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.A.17-3	4.C.02 4.C.07	Camera Module Installer	0160	828.281 003.181	Electronics Mechanic Electrical Technician		
		27	01	2.A.17-4	4.C.02 4.C.07	Camera Module Installer	0160	007.081 003.181	Optical Technician Electrical Technician		
		27	01	2.A.19-2	4.C.02 4.C.07	Scanner Module Installer	0905	007.081 003.181	Optical Technician Electrical Technician		
		27	01	2.A.19-1	4.C.02 4.C.07	Scanner Module Installer	0905	003.181	Electrical Technician		
		27	01	2.A.12-16	4.C.02 4.C.07	Radar Transmitter Module Installer	0616	003.181	Electrical Technician		
		27	01	2.A.12-17	4.C.02 4.C.07	Radar Receiver Module Installer	0623	003.181	Electrical Technician		
		27	01	2.A.21-2	4.C.02 4.C.07	Radiometer Module Installer	0637	003.181	Electrical Technician		
		27	01	2.A.24	4.C.02 4.C.07	Sferics Detector Module Installer	0947	003.181	Electrical Technician		
		27	01	2.A.04-2	4.C.02 4.C.07	TV Systems Module Installer	0346	007.081 003.181	Optical Technician Electrical Technician		
		27	01	2.A.01-5	4.C.02 4.C.07	Telescope Module Installer	0188	007.081 003.181	Optical Technician Electrical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH			SERIES ES-1-A

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVTR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
7	(Continued)	28	01	2.B.04-4	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.181	Electronics Mechanic		
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-6	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.181	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-12	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-13	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-15	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-14	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-11	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-8	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.291	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.B.04-18	4.C.02	Earth Survey C/D Equipment Repairer	2065	828.281	Electronics Mechanic	
					4.C.07			003.181	Electrical Technician		
			28	01	2.A.17-3	4.C.02	Camera Repairer	1195	828.281	Electronics Mechanic	
					4.C.07			007.081	Optical Technician		
	28	01	2.A.17-4	4.C.02	Camera Repairer	1195	828.281	Electronics Mechanic			
			4.C.07			007.081	Optical Technician				
	28	01	2.A.12-16	4.C.02	Radar Transmitter Repairer	0684	828.281	Electronics Mechanic			
			4.C.07								
	28	01	2.A.12-17	4.C.02	Radar Receiver Repairer	0686	828.281	Electronics Mechanic			
			4.C.07								
	28	01	2.A.19-1	4.C.02	Scanner Repairer	2066	828.281	Electronics Mechanic			
			4.C.07								
	28	01	2.A.21-2	4.C.02	Radiometer Repairer	0692	828.281	Electronics Mechanic			
			4.C.07								
	28	01	2.A.24	4.C.02	Sferics Detector Repairer	2237	828.281	Electronics Mechanic			
			4.C.07								
	28	01	2.A.04-2	4.C.02	TV Systems Repairer	1194	828.281	Electronics Mechanic			
			4.C.07				007.081	Optical Technician			
	28	01	2.A.19-2	4.C.02	Scanner Repairer	2066	828.281	Electronics Mechanic			
			4.C.07								
	28	01	2.A.01-5	4.C.02	Telescope Repairer	1193	828.281	Electronics Mechanic			
			4.C.07								
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-10-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Observations				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 10 - Unscheduled Maintenance					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
31	Perform fault isolation	07	01	2.A.01-5	2.B.04-18 4.C.01 4.C.02 4.C.05 4.C.07	Telescope Fault Identifier	0865	828.281 007.081	Electronics Mechanic Optical Technician				
		07	01	2.A.19-2	2.B.04-14 4.C.01 4.C.02 4.C.05 4.C.07	Scanner Fault Identifier	0887	828.281	Electronics Mechanic				
		07	01	2.A.17-3	2.B.04-6 4.C.01 4.C.02 4.C.05 4.C.07	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician				
		07	01	2.A.17-4	2.B.04-12 4.C.01 4.C.02 4.C.05 4.C.07	Camera Fault Identifier	0886	828.281 007.081	Electronics Mechanic Optical Technician				
		07	01	2.A.19-1	2.B.04-14 4.C.01 4.C.02 4.C.05 4.C.07	Scanner Fault Identifier	0887	828.281	Electronics Mechanic				
		07	01	2.A.21-2	2.B.04-11 4.C.01 4.C.02 4.C.05 4.C.07	Radiometer Fault Identifier	0691	828.281	Electronics Mechanic				
		07	01	2.A.24	2.B.04-8 4.C.01 4.C.02 4.C.05 4.C.07	Sferics Detector Fault Identifier	0890	828.281	Electronics Mechanic				
		07	01	2.A.04-2	2.B.04-13 4.C.01 4.C.02 4.C.05 4.C.07	TV System Fault Identifier	2064	828.281	Electronics Mechanic				
		REVISION NO: REVISION DATE: PREPARED BY: JHL/GRH/EMW APPROVED BY: GRH SERIES ES-1-A PAGE EO-5-10-4											

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: EARTH RESOURCES				FPE: ES-1 Earth Resources				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload EO-5				EXPERIMENT: 5.0 Disaster Assessment				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	07	01	2.A.04-15	2.A.12-16	Radar Transmitter Fault Identifier	0683	828.281	Electronics Mechanic		
					4.C.01						
					4.C.02						
					4.C.05						
					4.C.07						
		07	01	2.A.04-15	2.A.12-17	Radar Receiver Fault Identifier	0685	828.281	Electronics Mechanic		
4.C.01											
4.C.02											
4.C.05											
4.C.07											
		07	01	2.B.04	4.C.01	Earth Survey C/D Equipment Fault Identifier	0928	828.281	Electronics Mechanic		
4.C.02											
4.C.05											
4.C.07											
4.C.01											
		07	01	4.C.04	4.C.01	Electronic Equipment Fault Identifier	0795	828.281	Electronics Mechanic		
4.C.02											
4.C.05											
4.C.07											
4.C.01											
		07	01	4.C.07	4.C.01	Optical Equipment Fault Identifier	0891	007.081	Optical Technician		
4.C.02											
4.C.05											
REVISION NO:		REVISION DATE:		PREPARED BY: JHL/GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGE EO-5-10-5	

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-1**

**EXPERIMENT: 1.0 BIOLOGICAL EXPERIMENTS  
1.1 SEPARATION OF BIOLOGICALS**



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Select mixture to be separated	13	01	2.C.04-7	3.I.07-1 2.D.37-2	Biological Materials Separation Planner	2238	041-081	Biochemist		
3	Select buffer pH	13	01	3.I.07-1	2.C.04-6 2.C.04-7 2.D.37-2	Electrophoretic Separation Research Planner	1586	041.081	Biochemist		
8	Program power supply controller	13	01	3.I.07-1	2.B.06-9 4.D.13 2.C.04-6 2.C.04-7 2.D.37-2	Electrophoretic Separation Research Planner	1586	041.081	Biochemist		
		15	01	2.B.06-9	4.D.13 3.I.07-1 2.C.04-6 2.C.04-7 2.D.37-2	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
9	Connect ampoule to injection device	27	01	2.D.05-2	2.D.37-2	Ampoule Installer	1598	003.281	Instrumentation Technician		
29	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.07-1 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.07-1	2.D.05-2 4.A.02 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Electrophoretic Separation Research Coordinator	2239	041.081	Biochemist		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-1.1-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	Set up experiment apparatus	18	01	2.C.04-6	2.D.35	Buffer Solution Unstower	1552	000.000	General Technical Skill	MS-1	
		22	01	2.C.04-6	2.B.05-22 1.G.01-18 1.G.01-2 1.G.01-6	Buffer Solution Translocator	1553	000.000	General Technical Skill		
		27	01	2.C.04-6	2.D.37-2 3.I.07-1 2.D.39	Buffer Solution Installer	1551	003.281	Instrumentation Technician		
		18	01	2.C.04-7	2.D.05-2 2.D.35 2.B.05-22 (2.D.36)	Biological Material Unstower	1557	000.000	General Technical Skill		
		22	01	2.C.04-7	(2.B.06-3) 1.G.01-18 1.G.01-2 1.G.01-6 2.D.05-2	Biological Material Translocator	1558	000.000	General Technical Skill		
		27	01	2.D.05-2	2.C.04-7 3.I.07-1 2.D.37-2 (2.D.36) (2.B.06-3)	Ampoule Installer	1598	003.281	Instrumentation Technician		
		18	01	2.D.36	2.B.06-3 4.D.02	Biological Enclosure Unstower	1560	003.281	Instrumentation Technician		
		18	01	2.B.05-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		
		18	01	2.A.39-1	4.D.20 4.D.02	Interferometer Unstower	1602	003.281	Instrumentation Technician		
		22	01	2.A.39-1	1.G.01-2 1.G.01-6 1.G.01-18	Interferometer Translocator	1603	000.000	General Technical Skill		
		27	01	2.A.39-1	1.G.01-7 2.D.37-2 2.D.35 3.I.07-1 4.D.20	Interferometer Installer	1601	003.181	Electrical Technician		
		18	01	2.D.37-2	4.D.20 4.D.02	Electrophoretic Column Unstower	1574	003.281	Instrumentation Technician		
		22	01	2.D.37-2	1.G.01-2 1.G.01-6 1.G.01-18	Electrophoretic Column Translocator	1575	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-1.1-04-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	27	01	2.D.37-2	4.D.22-1 2.D.36) 2.B.06-2 2.D.39 4.D.13 3.I.07-1	Electrophoretic Column Installer	1573	003.181	Electrical Technician	MS-1	
		18	01	2.D.39	4.D.20 4.D.02	Buffer/Waste Separator Unstower	1541	003.281	Instrumentation Technician		
		22	01	2.D.39	1.G.01-2 1.G.01-6 1.G.01-18	Buffer/Waste Separator Translocator	1542	000.000	General Technical Skill		
		27	01	2.D.39	2.D.37-2 4.D.22-1 (2.D.36) 2.B.06-20 4.D.13 3.I.07-1 1.G.03-5	Buffer/Waste Separator Installer	1540	003.181	Electrical Technician	MS-1	
		18	01	2.D.40	4.D.20 4.D.02	Gas Elimination/Cooling System Unstower	1525	003.281	Instrumentation Technician		
		22	01	2.D.40	1.G.01-2 1.G.01-6 1.G.01-18	Gas Elimination/Cooling System Translocator	1526	000.000	General Technical Skill		
		27	01	2.D.40	2.D.37-2 4.D.22-1 (2.D.36) 2.B.06-21 4.D.13 3.I.07-1 1.G.03-5 1.G.03-6	Gas Elimination/Cooling System Installer	1524	003.181	Electrical Technician	MS-1	
		18	01	2.A.04-3	4.D.20 4.D.02	TV Camera Unstower	0054	000.000	General Technical Skill		
		22	01	2.A.04-3	1.G.01-2 1.G.01-6 1.G.01-18	TV Camera Translocator	0026	000.000	General Technical Skill		
		27	01	2.A.04-3	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.09	TV Camera Installer	0306	003.181	Electrical Technician		

REVISION NO:	REVISION DATE:	PREPARED BY: GRH/EMW	APPROVED BY: GRH	SERIES MS-1-A	PAGE MS-1.1-04-3
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	18	01	2.A.40-2	4.D.20 4.D.02	Densitometer Unstower	1455	003.281	Instrumentation Technician		
		22	01	2.A.40-2	1.G.01-2 1.G.01-6 1.G.01-18	Densitometer Translocator	1456	000.000	General Technical Skill		
		27	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.06-8	Densitometer Installer	1457	003.181	Electrical Technician		
32	Reconfigure experiments	26	01	2.C.04-6	2.D.37-2 3.I.07-1 2.D.39	Buffer Solution Remover	1554	003.281	Instrumentation Technician	MS-1	
		26	01	2.D.05-2	2.C.04-7 2.D.37-2 3.I.07-1 (2.D.36)	Ampoule Remover	2241	003.281	Instrumentation Technician		
		27	01	2.D.05-2	2.C.04-7 2.D.37-2 3.I.07-1 (2.D.36)	Ampoule Installer	1598	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.07-1 2.D.37-2 2.C.04-6 2.C.04-7	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	2.D.37-2	4.D.22-1 (2.D.36) 2.B.06-2 2.D.39 4.D.13	Electrophoretic Column Remover	1576	003.181	Electrical Technician		
		27	01	2.D.37-2	3.I.07-1 4.D.22-1 (2.D.36) 2.B.06-2 2.D.39 4.D.13 3.I.07-1	Electrophoretic Column Installer	1573	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/ENW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-1.1-04-4	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
32	(Continued)	26	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.06-8	Densitometer Remover	1458	003.181	Electrical Technician	
		27	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.06-8	Densitometer Installer	1457	003.181	Electrical Technician	
		26	01	2.A.39	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.06-8	Interferometer Remover	1604	003.181	Electrical Technician	
		27	01	2.A.39	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.06-8	Interferometer Installer	1601	003.181	Electrical Technician	
		26	01	2.A.04-3	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.09	TV Camera Remover	0661	003.181	Electrical Technician	
		27	01	2.A.04-3	1.G.01-7 2.D.37-2 2.D.36 3.I.07-1 2.B.09	TV Camera Installer	0306	003.181	Electrical Technician	
		08	01	2.A.40-2	4.C.01	Densitometer Calibrator	1461	003.281	Instrumentation Technician	
		08	01	2.A.39-1	4.C.01	Interferometer Calibrator	1605	003.281	Instrumentation Technician	
35	Calibrate Instruments	08	01	2.A.40-2	4.C.01	Densitometer Calibrator	1461	003.281	Instrumentation Technician	
		08	01	2.A.39-1	4.C.01	Interferometer Calibrator	1605	003.281	Instrumentation Technician	
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-1.1-04-5

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING			FPE: MS-1 Materials Sciences and Manufacturing in Space			MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-1			EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals			BASIC FUNCTION: 04 - Experiment Setup		

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
37	Define apparatus configuration	11	01	3.I.07-1	2.D.36 4.D.22-1 2.B.05-2 2.D.15 4.D.13 2.D.37-2 2.D.39 2.D.40 2.A.04-3 2.A.40-2 2.A.39-1 2.D.35 2.C.04-6	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist	
		13	01	3.I.07-1	2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.39 2.D.40 2.A.04-3 2.A.40-2 2.A.39-1 2.D.35 2.C.04-6 2.C.04-7	Electrophoretic Separation Research Planner	1586	041.081	Biochemist	

REVISION NO:	REVISION DATE:	PREPARED BY: GRH/EMW	APPROVED BY: GRH	SERIES MS-1-A	PAGE MS-1.1-04-6
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				IPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
38	Define experiment conditions	11	01	3.I.07-1	2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.30 2.D.40 2.A.04-3 2.A.40-2 2.A.20-1 2.D.35 2.C.04-6 2.C.04-7	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist		
		13	01	3.I.07-1	2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.30 2.D.40 2.A.04-3 2.A.40-2 2.A.20-1 2.D.35 2.C.04-6 2.C.04-7	Electrophoretic Separation Research Planner	1586	041.081	Biochemist		
43	Install TV cameras	18	01	2.A.04-3	4.D.20 4.D.02	TV Camera Unstower	0054	000.000	General Technical Skill		
		22	01	2.A.04-3	1.G.01-2 1.G.01-6 1.G.01-18	TV Camera Translocator	0026	000.000	General Technical Skill		
		27	01	2.A.04-3	1.G.01-7 2.D.37-2 3.I.07-1	TV Camera Installer	0306	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-1.1-04-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
46	Install data recording equipment	18	01	4.D.10	4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	4.D.02 1.G.01-2 1.G.01-6 1.G.01-18	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	1.G.01-7 2.B.05-2 2.B.06-19	Data Recorder Installer	1156	003.181	Electrical Technician		
50	Checkout optical instrumentation and measuring devices	03	01	2.A.04-3	4.D.09	TV Camera Inspector	0079	722.281	Inspector, Systems		
		03	01	2.A.40-2	4.D.09	Densitometer Inspector	2242	722.281	Inspector, Systems		
		03	01	2.A.39-1	4.D.09	Interferometer Inspector	2243	722.281	Inspector, Systems		
		14	01	2.B.04-2	2.A.04-3	TV System Tester	2060	003.181	Electrical Technician		
		14	01	2.B.05-8	2.A.40-2	Densitometer Tester	1618	003.181	Electrical Technician		
		14	01	2.B.06-8	2.A.39-1	Interferometer Tester	1606	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-1.1-04-8	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	Flush out apparatus	18	01	4.D.06	2.D.25	Cleaning/Decontamination Equipment	1537	003.281	Instrumentation Technician	MS-1	
		22	01	4.D.06	1.G.03-2 1.G.01-2	Unstower Cleaning/Decontamination Equipment	1538	000.000	General Technical Skill		
		27	01	4.D.06	1.G.01-6 1.G.01-18	Translocator Cleaning/Decontamination Equipment	1536	003.181	Electrical Technician		
		19	01	2.D.37-2	2.D.39 2.D.40	Installer Electrophoretic Column Cleaner	1577	000.000	General Technical Skill		
		19	01	2.D.39	4.D.06	Buffer/Waste Separator Cleaner	1543	000.000	General Technical Skill		
		19	01	2.D.40	4.D.06	Gas Elimination/Cooling System Cleaner	1527	000.000	General Technical Skill		
15	Secure apparatus	26	01	2.C.04-6	2.D.37-2	Buffer Solution Remover	1554	003.281	Instrumentation Technician		
		22	01	2.C.04-6	1.G.01-18 1.G.01-2	Buffer Solution Translocator	1553	000.000	General Technical Skill		
		17	01	2.C.04-6	1.G.01-6 2.D.39	Buffer Solution Stower	2244	000.000	General Technical Skill		
		26	01	2.C.04-7	2.D.05-2 2.D.35 2.B.06-22 (2.D.36) (2.B.06-3) 2.D.37-2	Biological Materials Remover	1559	003.181	Electrical Technician		
		22	01	2.C.04-7	1.G.01-18 1.G.01-2 1.G.01-6 2.D.05-2	Biological Material Translocator	1558	000.000	General Technical Skill		
		17	01	2.C.04-7	3.I.07-1 2.D.35 (2.D.36)	Biological Material Stower	2245	003.281	Instrumentation Technician		
		17	01	2.D.36	2.B.06-3 4.D.02	Biological Enclosure Stower	1562	003.281	Instrumentation Technician		
		17	01	2.B.05-2	4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician		
		17	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician		
		26	01	2.A.39-1	2.D.37-2 1.G.01-7	Interferometer Remover	1604	003.181	Electrical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-1.1-05-2

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space		MISSION MODE: A - Shuttle Sortie						
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 05 - Experiment Shutdown				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVYR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE			
15	(Continued)	22	01	2.A.29-1	1.G.01-2 1.G.01-6 1.G.01-18	Interferometer Translocator	1603	000.000	General Technical Skill	MS-1		
		17	01	2.A.39-1	4.D.20 4.D.02	Interferometer Stower	1607	003.281	Instrumentation Technician			
		26	01	2.D.37-2	2.D.39 1.G.01-7	Electrophoretic Column Remover	1576	003.181	Electrical Technician			
		22	01	2.D.37-2	1.G.01-2 1.G.01-6 1.G.01-18	Electrophoretic Column Translocator	1575	000.000	General Technical Skill			
		17	01	2.D.37-2	4.D.20 4.D.02	Electrophoretic Column Stower	1578	003.281	Instrumentation Technician			
		26	01	2.D.39	2.D.37-2 1.G.01-7	Buffer/Waste Separator Remover	1621	003.181	Electrical Technician			
		22	01	2.D.39	1.G.01-2 1.G.01-6 1.G.01-18	Buffer/Waste Separator Translocator	1542	000.000	General Technical Skill			
		17	01	2.D.39	4.D.20 1.G.01-7	Buffer/Waste Separator Stower	1544	003.281	Instrumentation Technician			
		26	01	2.D.40	2.D.37-2 4.D.22-1 (2.D.36) 2.B.06-21 4.D.13 1.G.03-5 1.G.03-6	Gas Elimination/Cooling System Remover	1622	003.181	Electrical Technician			
		22	01	2.D.40	1.G.01-2 1.G.01-6 1.G.01-18	Gas Elimination/Cooling System Translocator	1526	000.000	General Technical Skill			
		17	01	2.D.40	4.D.20 4.D.02 2.D.37-2 4.D.22-1 (2.D.36) 2.B.06-21 4.D.13 1.G.03-5 1.G.03-6	Gas Elimination/Cooling System Stower	1528	003.281	Instrumentation Technician			
											MS-1	
											MS-1	

REVISION NO:

REVISION DATE:

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APPROVED BY: GRH

SERIES MS-1-A

PAGES 1.1-05-3

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
15	(Continued)	26	01	2.A.04-3	1.G.01-7 2.D.37-2 2.D.36 2.B.09	TV Camera Remover	0661	003.181	Electrical Technician		
		22	01	2.A.04-3	1.G.01-2 1.G.01-6 1.G.01-18	TV Camera Translocator	0026	000.000	General Technical Skill		
		17	01	2.A.04-3	4.D.20 4.D.02	TV Camera Stower	0064	000.000	General Technical Skill		
		26	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 2.B.06-8	Densitometer Remover	1453	003.181	Electrical Technician		
		22	01	2.A.40-2	1.G.01-2 1.G.01-6 1.G.01-18	Densitometer Translocator	1456	000.000	General Technical Skill		
		26	01	2.A.40-2	1.G.01-7 2.D.37-2 2.D.36 2.B.06-8	Densitometer Remover	1458	003.181	Electrical Technician		
16	Dispose of toxic cleaning materials	22	01	4.D.06	1.G.01-2 1.G.01-6 1.G.01-18	Cleaning/Decontamination Equipment Translocator	1538	000.000	General Technical Skill		
		17	01	4.D.06	1.G.03-5	Cleaning/Decontamination Equipment Stower	1539	003.281	Instrumentation Technician		
17	Preserve samples by freeze drying	22	01	2.C.04-7	1.G.01-2 1.G.01-6 1.G.01-18	Biological Materials Translocator	1558	000.000	General Technical Skill		
		27	01	2.C.04-7	2.D.43 2.D.36 3.J.01	Biological Materials Installer	1556	003.181	Electrical Technician		
		15	01	2.B.06-23	2.D.43 3.J.01	Lyophilization Apparatus Control Actuator	1589	003.281	Instrumentation Technician		
29	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.07-1 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Radio Communicator	0206	003.187	Radio Engineer	MS-2	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-1.1-05-4	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
29	(Continued)	05	01	3.I.07-1	4.A.02 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Electrophoretic Separation Research Coordinator	2239	041.081	Biochemist	MS-3	
44	Develop film; make prints	06 06	01 01	4.B.08 4.D.19	2.A.27 2.A.27	Film Processor Film Processor	0328 0328	976.782 976.782	Film Developer Film Developer		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-1.1-05-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
4	Initiate bias voltage to column	15	01	4.D.13	2.B.06-9 2.D.37-2 2.B.06-1	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
6	Make up buffer solution from stock solutions	10	01	2.C.04-6	3.I.07-1 2.C.04-7 2.D.21-4	Buffer Solution Mixing Controller	1555	041.081	Biochemist	
7	Fill apparatus with buffer	27	01	2.C.04-6	2.D.37-2 2.D.28	Buffer Solution Installer	1551	003.281	Instrumentation Technician	
10	Verify buffer flow rate	02	01	2.B.06-20	2.D.37-2 2.C.04-6 2.D.39	Buffer Solution Flow Rate Observer	2247	041.081	Biochemist	
		13	01	2.B.06-20	2.D.27-2 2.C.04-6 2.D.39 3.I.07-1	Buffer Solution Flow Rate Determiner	1623	041.081	Biochemist	
11	Initiate sample injection	15	01	2.B.06-19	2.D.37-2 2.C.04-7	Electrophoretic Column Control Actuator	2248	003.281	Instrumentation Technician	
13	Periodically monitor continuous column run	01	01	2.B.06-19	2.D.37-2 2.C.04-6 2.C.04-7 2.D.39 3.I.07-1	Electrophoretic Column Operation Monitor	1579	000.000	General Technical Skill	
18	Operate Schlieren optical scanner	15	01	2.B.06-8	2.A.29-2 2.D.37-2 2.C.04-6 2.C.04-7 3.I.07-1	Interferometer Control Actuator	1616	003.281	Instrumentation Technician	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES ES-1-A		PAGEMS-1.1-06-1

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
19	Operate U.V. microdensitometer	15	01	2.B.06-8	2.A.40-2 2.D.37-2 2.C.04-6 2.C.04-7 3.I.07-1	Densitometer Control Actuator	1617	003.281	Instrumentation Technician		
20	Evaluate Schlieren or microdensitometer traces	11	01	3.I.07-1	2.A.39-2 2.A.40-2 2.C.04-7 2.B.06-19 2.B.06-8	Electrophoretic Separation Process Process Evaluator	1587	041.081	Biochemist		
21	Determine infrared absorption spectra of samples	02	01	2.C.04-7	2.A.03-9 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1	
		11	01	3.I.07-1	2.C.04-7 2.A.03-9 2.D.27	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist		
		13	01	2.C.04-7	2.A.03-9 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Data Determiner	2249	041.081	Biochemist	MS-1	
22	Titrate samples with biological reagents	10	01	2.D.27	2.C.04-8 2.C.04-7 3.I.07-1 (2.D.36)	Materials Analysis Equipment Controller	1049	041.081	Biochemist	MS-1	
		02	01	2.C.04-7	2.C.04-8 3.I.07-1 (2.D.36)	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1	
		11	01	3.I.07-1	2.C.04-7 2.C.04-8 2.D.27	Electrophoretic Separation Research Evaluator	1625	041.081	Biochemist		
		13	01	2.C.04-7	2.D.37-2 2.D.27 2.C.04-8 3.I.07-1	Biological Materials Data Determiner	2249	041.081	Biochemist		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW			APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-1.1-06-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
23	Measure chemical reaction rates	10	01	2.C.04-7	2.C.04-9 2.D.27 3.I.07-1 (2.D.26)	Biological Materials Mixing Controller	1626	041.081	Biochemist	MS-1
		02	01	2.C.04-7	2.C.04-9 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1
		13	01	2.C.04-7	2.C.04-9 2.D.27 3.I.07-1 2.D.37-2	Biological Materials Data Determiner	2249	041.081	Biochemist	
24	Measure product effectiveness on bacterial cultures	10	01	2.C.04-7	2.C.04-4 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Mixing Controller	1626	041.081	Biochemist	MS-1
		02	01	2.C.04-7	2.C.04-4 2.D.27 3.I.07-1 (2.D.36)	Biological Materials Test Observer	1624	041.081	Biochemist	MS-1
		13	01	2.C.04-7	2.C.04-4 2.D.27 3.I.07-1 2.D.37-2	Biological Materials Data Determiner	2249	041.081	Biochemist	
26	Photograph experiment configuration	15	01	4.D.04-3	2.D.36 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.37-2 2.D.39 2.D.40 2.A.04-3 2.A.40-2 2.A.30-1	Camera Control Actuator	0245	003.281	Instrumentation Technician	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-1.1-06-3

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPI: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
28	Voice record lab notes.	05	01	3.I.07-1	4.D.10	Electrophoretic Separation Data Recorder	1588	000.000	General Technical Skill	
29	Conduct voice conferences	05	01	4.A.02	3.I.07-1 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Radio Communicator	0206	003.187	Radio Engineer	
		05	01	3.I.07-1	4.A.02 2.C.04-7 2.D.37-2 2.B.06-9 2.C.04-6 4.D.13 2.D.05-2	Electrophoretic Separation Research Coordinator	2239	041.081	Biochemist	
36	Schedule experiment runs	13	01	3.I.07-1	2.B.06-2 2.B.06-1 2.C.04-7 6.A.02	Electrophoretic Separation Research Planner	1586	041.081	Biochemist	
39	Monitor experiment performance	01	01	2.B.06-3	2.D.36 3.I.07-1	Biological Enclosure Operation Monitor	1563	003.281	Instrumentation Technician	
		01	01	2.B.06-7	2.D.15 3.I.07-1	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician	
		01	01	2.B.06-9	4.D.13 3.I.07-1	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician	
		01	01	2.B.06-19	2.D.37-2 3.I.07-1 2.C.04-6	Electrophoretic Column Operation Monitor	1579	003.281	Instrumentation Technician	
		01	01	2.B.06-20	2.C.04-7 2.D.39 3.I.07-1	Buffer/Waste Separator Operation Monitor	1545	003.281	Instrumentation Technician	
		01	01	2.B.06-21	2.C.04-6 2.D.40 3.I.07-1	Gas Elimination/Cooling System Operation Monitor	1529	003.281	Instrumentation Technician	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-1.1-06-4



# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
39	(Continued)	01	01	2.B.06-8	2.A.40-2 3.I.07-1	Densitometer Operation Monitor	1462	003.281	Instrumentation Technician		
		01	01	2.B.06-8	2.A.39-1 3.I.07-1	Interferometer Operation Monitor	1609	003.281	Instrumentation Technician		
40	Evaluate experiment results	11	01	3.I.07-1	2.D.37-2 2.C.04-7 2.C.04-6 2.C.04-9 2.C.04-4 2.C.04-8	Electrophoretic Separation Research Evaluator	1625	041.085	Biochemist		
47	Operate measuring, recording, and transmission systems and equipment	10	01	2.B.06-2	2.A.04-3 2.D.37-2 2.B.06-2	TV Camera Controller	0334	003.181	Electrical Technician		
		10	01	1.G.02-12	4.A.01 2.B.06-2	Telemetry Equipment Controller	1104	003.181	Electrical Technician		
		10	01	2.D.27	2.C.04-7 3.I.07-1	Materials Analysis Equipment Controller	1049	041.081	Biochemist		
		05	01	4.A.02	3.I.07-1 6.A.02	Radio Communicator	0206	003.187	Radio Engineer		
		10	01	2.B.06-8	2.A.40-2 2.D.37-2 3.I.07-1 2.C.04-7	Densitometer Controller	1620	003.181	Electrical Technician		
		10	01	2.B.06-8	2.A.29-1 2.D.37-2 3.I.07-1 2.C.04-7	Interferometer Controller	1608	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-1.1-06-5		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 1.0 Biological Experiments 1.1 Separation of Biologicals				BASIC FUNCTION: 10 - Unscheduled Maintenance (See note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-3	2.D.36 4.D.18 4.C.02	Biological Enclosure Fault Identifier	1568	828.281	Electronics Mechanic		
		28	01	2.D.36	4.D.18	Biological Enclosure Repairer	1569	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.D.18 4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.B.06-9	4.D.13 4.D.18 4.C.02	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-19	2.D.37-2 4.D.18 4.C.02	Electrophoretic Column Fault Identifier	1584	828.281	Electronics Mechanic		
		28	01	2.D.37-2	4.D.18	Electrophoretic Column Repairer	1585	828.281	Electronics Mechanic		
		07	01	2.B.06-20	2.D.39 4.D.18 4.C.02	Buffer/Waste Separator Fault Identifier	1548	828.281	Electronics Mechanic		
		28	01	2.D.39	4.D.18	Buffer/Waste Separator Repairer	1572	828.281	Electronics Mechanic		
		07	01	2.B.06-21	2.D.40 4.D.18 4.C.02	Gas Elimination/Cooling System	1534	828.281	Electronics Mechanic		
		28	01	2.D.40	4.D.18	Gas Elimination/Cooling System Repairer	1535	828.281	Electronics Mechanic		
		07	01	2.B.09	2.A.04-3 4.D.18 4.C.02	TV Camera Fault Identifier	0689	828.281	Electronics Mechanic		
		28	01	2.A.04-3	4.D.18	TV Camera Repairer	0690	828.281	Electronics Mechanic		
		07	01	2.B.06-8	2.A.40-2 4.D.18 4.C.02	Densitometer Fault Identifier	1465	828.281	Electronics Mechanic		
		28	01	2.A.40-2	4.D.18	Densitometer Repairer	1466	828.281	Electronics Mechanic		
		07	01	2.B.06-8	2.A.39-1 4.D.18 4.C.02	Interferometer Fault Identifier	1614	828.281	Electronics Mechanic		
		28	01	2.A.39-1	4.D.18	Interferometer Repairer	1615	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-1.1-10-1	

**APPENDIX H**

**FLIGHT EXPERIMENT TASK/SKILL**

**REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-2**

**EXPERIMENT: 2.0 LEVITATION EXPERIMENTS**  
**2.1 PREPARATION OF GLASSES**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2.				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Set up apparatus in prescribed configuration	18	01	2.C.26	4.D.20	Glass Samples Unstower	1513	003.281	Instrumentation Technician		
		22	01	2.C.26	1.G.01-18 1.G.01-2 1.G.01-6	Glass Samples Translocator	1514	000.000	General Technical Skill		
		27	01	2.C.26	2.D.24-1 3.I.06-1	Glass Samples Installer	1515	003.181	Electrical Technician		
		18	01	2.D.13-1	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician		
		18	01	2.B.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	2.D.15	4.D.02 2.B.06-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		
		18	01	2.D.24-1	4.D.02 2.B.06-10	Furnace Unstower	0980	003.281	Instrumentation Technician		
		18	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Unstower	1203	003.281	Instrumentation Technician		
		22	01	2.D.34	1.G.01-18 1.G.01-2 1.G.01-6	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill		
		27	01	2.D.34	2.D.13-1 2.D.13-2 2.D.15 2.B.06-27 3.I.06-1	Atmosphere Analysis Unit Installer	1205	003.181	Electrical Technician		
		18	01	2.A.43	4.D.02 4.D.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician		
		22	01	2.A.43	1.G.01-18 1.G.01-2 1.G.01-6	Holographic Device Translocator	1239	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-2.1-04-1		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	(Continued)	27	01	2.A.43	2.B.06-14 2.C.26 3.I.06-1	Holographic Device Installer	1238	003.181	Electrical Technician		
		18	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician		
		22	01	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
		27	01	2.D.52	2.B.06-17 4.D.13 3.I.06-1	VHF Power Unit Installer	1091	003.181	Electrical Technician		
		18	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician		
		18	01	4.D.22-1	4.D.02	General Purpose Lab Bench Unstower	2252	003.281	Instrumentation Technician		
		18	01	2.D.45	4.D.02 4.D.20	Silicate Melt Susceptor Unstower	1373	003.281	Instrumentation Technician		
		22	01	2.D.45	1.G.01-18 1.G.01-2 1.G.01-6	Silicate Melt Susceptor Translocator	1374	000.000	General Technical Skill		
		27	01	2.D.45	2.D.13-2 4.D.13 2.B.06-25 3.I.06-1	Silicate Melt Susceptor Installer	1375	003.181	Electrical Technician		
		18	01	2.A.04-3	4.D.02 4.D.20	TV Camera Unstower	0054	003.281	Instrumentation Technician		
		22	01	2.A.04-3	1.G.01-18 1.G.01-2 1.G.01-6	TV Camera Translocator	0026	000.000	General Technical Skill		
		27	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-1 2.D.13-2 2.D.24-1	TV Camera Installer	0306	003.181	Electrical Technician		
		18	01	4.B.01-1	4.D.02 1.G.02-13	Accident Control System Unstower	2253	003.281	Instrumentation Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH			SERIES MS-1-A

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
1	(Continued)	18	01	2.D.32	4.D.02 4.D.20	Heating/Positioning Coil Unstower	1271	003.281	Instrumentation Technician	
		22	01	2.D.32	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill	
		27	01	2.D.32	2.D.52 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-11 3.I.06-1	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician	
		18	01	2.A.44	4.D.02 4.D.20	Viewing Device Unstower	1215	003.281	Instrumentation Technician	
		22	01	2.A.44	1.G.01-18 1.G.01-2 1.G.01-6	Viewing Device Translocator	1216	000.000	General Technical Skill	
		27	01	2.A.44	2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.B.06-28 3.I.06-1	Viewing Device Installer	1217	003.181	Electrical Technician	
2	Place samples in processing equipment	27	01	2.C.26	2.D.13-1 2.D.13-2 2.D.24-1 2.D.32 3.I.06-1	Glass Sample Installer	1515	003.181	Electrical Technician	
10	Conduct voice conferences with ground experiment personnel	05	01	4.A.02	3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.D.45 2.A.43 2.D.32	Radio Communicator	0206	003.187	Radio Engineer	
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
10	(Continued)	05	01	3.I.06-1	4.A.02 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.D.45 2.A.43 2.D.32	Glass Processing Research Coordinator	2254	022.081	Chemist, Inorganic - Glass	
32	Reconfigure experiments	26	01	2.C.26	2.D.24-1	Glass Sample Remover	1516	003.181	Electrical Technician	
		27	01	2.C.26	2.D.24-1	Glass Sample Installer	1515	003.181	Electrical Technician	
		26	01	2.D.13-1	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician	
		27	01	2.D.13-1	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician	
		26	01	2.D.13-2	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician	
		27	01	2.D.13-2	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician	
		15	01	2.B.06-1	3.I.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician	
		15	01	2.B.06-2	3.I.06-1	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician	
		15	01	2.B.06-7	3.I.06-1	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician	
		26	01	2.D.15	3.I.06-1	Atmosphere Supply and Control System Module Remover	1127	003.181	Electrical Technician	
		27	01	2.D.15	3.I.06-1	Atmosphere Supply and Control System Module Installer	1128	003.181	Electrical Technician	
		15	01	2.B.06-6	4.D.18	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
		15	01	2.B.06-9	4.D.13	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician	
		26	01	4.D.13	3.I.06-1	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician	
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	27	01	4.D.13	3.I.06-1 2.C.26 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-10	2.D.24-1 3.I.06-1 2.C.26	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		26	01	2.D.24-1	3.I.06-1 2.C.26 4.D.18	Furnace Module Remover	0981	003.181	Electrical Technician		
		27	01	2.D.24-1	3.I.06-1 2.C.26 4.D.18	Furnace Module Installer	0982	003.181	Electrical Technician		
		15	01	2.B.06-27	2.D.34 3.I.06-1 2.C.26	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		26	01	2.D.34	3.I.06-1 2.C.26 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician		
		27	01	2.D.34	3.I.06-1 2.C.26 4.D.18	Atmosphere Analysis Unit Module Installer	1209	003.181	Electrical Technician		
		26	01	2.A.43	3.I.06-1 2.C.26 4.D.18	Holographic Device Remover	1237	003.181	Electrical Technician		
		27	01	2.A.43	3.I.06-1 2.C.26 4.D.18	Holographic Device Installer	1238	003.181	Electrical Technician		
		26	01	2.A.43	3.I.06-1 2.C.26 4.D.18	Holographic Device Module Remover	1235	003.181	Electrical Technician		
		27	01	2.A.43	3.I.06-1 2.C.26 4.D.18	Holographic Device Module Installer	1234	003.181	Electrical Technician		
		15	01	2.B.06-17	2.D.52 3.I.06-1 2.C.26 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.D.52	3.I.06-1 2.C.26 2.B.06-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician		
		27	01	2.D.52	3.I.06-1 2.C.26 2.B.06-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician		
		26	01	2.D.52	3.I.06-1 2.C.26 2.B.06-17 4.D.13	VHF Power Unit Module Remover	1095	003.181	Electrical Technician		
		27	01	2.D.52	3.I.06-1 2.C.26 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Installer	1096	003.181	Electrical Technician		
		15	01	1.G.02-14	4.D.14 3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	2.B.06-25	2.D.45 3.I.06-1 2.C.26	Silicate Melt Susceptor Control Actuator	1372	003.181	Instrumentation Technician		
		26	01	2.D.45	3.I.06-1 2.C.26 2.D.13-2 4.D.13	Silicate Melt Susceptor Remover	1376	003.281	Electrical Technician		
		27	01	2.D.45	2.B.06-25 3.I.06-1 2.C.26 2.D.13-2 4.D.13 2.B.06-25	Silicate Melt Susceptor Installer	1375	003.281	Electrical Technician		

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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.D.45	3.I.06-1 2.C.26 2.D.13-2 4.D.13 2.B.06-25 4.D.18	Silicate Melt Susceptor Module Remover	1377	003.281	Electrical Technician		
		27	01	2.D.45	3.I.06-1 2.C.26 2.D.13-2 4.D.13 2.B.06-25 4.D.18	Silicate Melt Susceptor Module Installer	1378	003.281	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.1-04-7	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-1 2.D.13-2 2.D.24-1	TV Camera Remover	0661	003.281	Electrical Technician		
		27	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-1 2.D.13-2 2.D.24-1	TV Camera Installer	0306	003.281	Electrical Technician		
		15	01	2.B.06-11	3.I.06-1 2.D.32 3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician		
		26	01	2.D.32	3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician		
		27	01	2.D.32	2.B.06-11 3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Postioning Coil Installer	1269	003.181	Electrical Technician		
		15	01	2.B.06-28	2.B.06-11 2.A.44 3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
32	(Continued)	26	01	2.A.44	3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.B.06-28	Viewing Device Remover	1218	003.181	Electrical Technician	
		27	01	2.A.44	3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.B.06-28	Viewing Device Installer	1217	003.181	Electrical Technician	
35	Calibrate Instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator	
		08	01	2.D.52	4.C.01	VHF Power Unit Calibrator	1097	710.884	Calibrator	
		08	01	2.D.32	4.C.01	Heating/Positioning Coil Calibrator	1333	710.884	Calibrator	
		08	01	2.A.43	4.C.01	Holographic Device Calibrator	1227	710.884	Calibrator	
37	Define apparatus configuration	11	01	3.I.06-1	2.C.26 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.45 2.A.17-7 2.A.04-3 2.A.43 2.D.52 2.B.06-1 4.D.14 4.E.04-1 2.D.27 4.D.10 2.D.34 2.D.32 2.A.44	Glass Processing Research Evaluator	1522	022.081	Chemist, Inorganic - Glass	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.1-04-9

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
38	Define experiment conditions	13	01	3.I.06-1	2.C.26 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.45 2.A.17-7 2.A.04-3 2.A.43 2.D.52 2.B.06-1 4.D.14 4.E.04-1 2.D.27 4.D.10 2.D.34 2.D.32 2.A.44	Glass Processing Research Planner	1521	022.081	Chemist, Inorganic - Glass		
45	Install data recording system	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	2.B.06-1 2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician		
50	Checkout optical instrumentation and measuring devices	03	01	2.D.27	4.D.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems		
		03	01	2.A.04-3	4.D.09	TV Camera Inspector	0079	722.281	Inspector, Systems		
		03	01	2.A.43	4.D.09	Holographic Device Inspector	2270	722.281	Inspector, Systems		
		14	01	2.D.27	4.C.02	Materials Analysis Equipment Tester	1447	003.181	Electrical Technician		
		14	01	2.A.04-3	2.B.09	TV Camera Tester	0633	003.181	Electrical Technician		
		14	01	2.A.43	2.B.06-14	Holographic Device Tester	1449	003.181	Electrical Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
3	Refurbish experiment apparatus	19	01	2.D.13-1	2.C.26 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.13-2	2.C.26 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.24-1	2.C.26 4.D.06	Furnace Cleaner	0984	003.281	Instrumentation Technician		
		19	01	2.D.32	2.C.26 4.D.06	Heating/Positioning Coil Cleaner	1336	003.281	Instrumentation Technician		
		19	01	2.D.27	2.C.26 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician		
4	Secure experiment apparatus	26	01	2.C.26	2.D.24-1	Glass Sample Remover	1516	003.181	Electrical Technician		
		22	01	2.C.26	1.G.01-18 1.G.01-6 1.G.01-2	Glass Sample Translocator	1514	000.000	General Technical Skill		
		17	01	2.C.26	4.D.20	Glass Sample Stower	1517	003.281	Instrumentation Technician		
		17	01	2.D.13-1	2.B.06-6 4.D.02	Environmental Chamber Stower	1061	003.281	Instrumentation Technician		
		17	01	2.D.13-2	2.B.06-6 4.D.02	Environmental Chamber Stower	1061	003.281	Instrumentation Technician		
		17	01	2.B.06-1	4.B.06-2 4.D.02	Computer Stower	1160	003.281	Instrumentation Technician		
		17	01	2.B.06-2	4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician		
		17	01	2.D.15	2.B.06-7 4.D.02	Atmosphere Supply and Control System Stower	1169	003.281	Instrumentation Technician		
		17	01	4.D.13	2.B.06-9 4.D.02	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician		
		17	01	2.D.24-1	2.B.06-10 4.D.02	Furnace Stower	0983	003.281	Instrumentation Technician		
		26	01	2.D.34	2.B.06-27 2.D.13-1 2.D.13-2 2.D.15	Atmosphere Analysis Unit Remover	1206	003.181	Electrical Technician		
		22	01	2.D.34	1.G.01-18 1.G.01-6 1.G.01-2	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill		
		17	01	2.D.24	4.D.02 4.D.20	Atmosphere Analysis Unit Stower	1207	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-2.1-05-1		

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 05 - Experiment Shutdown				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE			
4	(Continued)	26	01	2.A.43	2.B.06-14	Holographic Device Remover	1237	003.181 000.000	Electrical Technician			
		22	01	2.A.43	1.G.01-18 1.G.01-6 1.G.01-2	Holographic Device Translocator	1239		General Technical Skill			
		17	01	2.A.43	4.D.02 4.D.20	Holographic Device Stower	1236	003.281	Instrumentation Technician			
		26	01	2.D.52	2.B.06-17 4.D.13	VFH Power Unit Remover	1094	003.181	Electrical Technician			
		22	01	2.D.52	1.G.01-18 1.G.01-6 1.G.01-2	VFH Power Unit Translocator	1093	000.000	General Technical Skill			
		17	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Stower	1098	003.281	Instrumentation Technician			
		17	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Stower	1145	003.281	Instrumentation Technician			
		17	01	4.D.22-1	4.D.02	General Purpose Lab Bench Stower	2256	003.281	Instrumentation Technician			
		26	01	2.D.45	2.D.13-2 4.D.13 2.B.06-25	Silicate Melt Susceptor Remover	1376	003.181	Instrumentation Technician			
		22	01	2.D.45	1.G.01-18 1.G.01-6 1.G.01-2	Silicate Melt Susceptor Translocator	1374	000.000	General Technical Skill			
		17	01	2.D.45	4.D.02 4.D.20	Silicate Melt Susceptor Stower	2257	003.281	Instrumentation Technician			
		26	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-1 2.D.13-2 2.D.24-1	TV Camera Remover	0661	003.281	Instrumentation Technician			
		22	01	2.A.04-3	1.G.01-18 1.G.01-6 1.G.01-2	TV Camera Translocator	0026	000.000	General Technical Skill			
		17	01	2.A.04-3	4.D.02 4.D.20	TV Camera Stower	0064	003.281	Instrumentation Technician			
		17	01	4.B.01-1	4.D.02 1.G.02-13	Accident Control System Stower	2258	003.281	Instrumentation Technician			
		26	01	2.D.32	2.D.52 2.D.13-1 2.D.13-2 4.D.22-1 2.B.06-11	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician			
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH			SERIES MS-1-A	PAGEMS-2.1-05-2

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 05 - Experiment Shutdown				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE			
4	(Continued)	22	01	2.D.32	1.G.01-18 1.G.01-6 1.G.01-2	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill		MS-3	
		17	01	2.D.32	4.D.02 4.D.20	Heating/Positioning Coil Stower	1267	003.281	Electrical Technician			
		26	01	2.A.44	2.D.13-1 2.D.13-2 2.D.24-1 2.B.05-28	Viewing Device Remover	1218	003.181	Electrical Technician			
		22	01	2.A.44	1.G.01-18 1.G.01-6 1.G.01-2	Viewing Device Translocator	1216	000.000	General Technical Skill			
44	Develop film; make prints	05	01	4.B.08	2.A.27-6	Film Processor	0328	976.782	Film Developer			
		06	01	4.D.19	2.A.27-6	Film Processor	0328	976.782	Film Developer			
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMK		APPROVED BY: GRH		SERIES MS-1-A			PAGE MS-2.1-05-3



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 06 - Experiment Conduct		
NO.	CREW TASK STATEMENT DESCRIPTION	CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
				PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
5	Monitor experiment atmosphere control equipment	01	01	2.B.06-7	2.D.15 2.D.34 5.J.01 4.C.02	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician	MS-3
		01	01	2.B.06-27	2.D.34 2.D.15 5.J.01 5.C.02	Atmosphere Analysis Unit Operation Monitor	1343	003.281	Instrumentation Technician	
6	Perform optical tests for glass homogeneity	12	01	2.C.26	2.D.27 3.I.06-1	Glass Structure Analyzer	1518	022.081	Chemist, Inorganic - Glass	
		10	01	2.D.27	2.C.26 3.I.06-1	Materials Analysis Equipment Controller	1049	022.081	Chemist, Inorganic - Glass	
7	Perform optical tests for glass crystallinity	12	01	2.C.26	2.D.27 3.I.06-1	Glass Structure Analyzer	1518	022.081	Chemist, Inorganic - Glass	
		10	01	2.D.27	2.C.26 3.I.06-1	Materials Analysis Equipment Controller	1049	022.081	Chemist, Inorganic - Glass	
8	Prepare photographs of glass samples	27	01	4.D.04-3	2.D.27 3.I.06-1	Camera Installer	0039	003.181	Electrical Technician	
		15	01	4.D.04-3	2.C.26 2.D.27 3.I.06-1 2.C.26	Camera Control Actuator	0245	003.281	Instrumentation Technician	
9	Transmit photographs to ground personnel	27	01	4.B.10	4.D.04-6 4.A.01	Line Reader Installer	2259	003.181	Electrical Technician	
		10	01	4.A.01	4.D.04-6 4.B.10	Telemetry Equipment Controller	1104	003.181	Electrical Technician	
10	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.06-1 2.C.26 2.D.13-1 2.D.13-2 2.D.24-1 2.D.45 2.A.43 2.D.32	Radio Communicator	0206	003.187	Radio Engineer	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.1-06-1

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION NODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 06 - Experiment Conduct				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE			
11	Activate data transmission equipment as required	15	01	1.G.02-12	4.A.01 3.I.06-1 6.A.02 5.L.03	Telemetry Equipment Control Actuator	0662	003.281	Instrumentation Technician			
		15	01	4.A.02	3.I.06-1 6.A.02 5.L.03	Radio Communicator	0206	003.187	Radio Engineer			
		15	01	1.G.02-12	4.A.04 3.I.06-1 6.A.02 5.L.03	Data Compression Equipment Control Actuator	1550	003.281	Instrumentation Technician			
		15	01	2.B.09	2.A.04-3 3.I.06-1 2.C.26 6.A.02 5.L.03	TV System Control Actuator	1549	003.281	Instrumentation Technician			
13	Initiate experiment run	15	01	2.B.06-11	2.D.32 3.I.06-1 2.C.26	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician			
		15	01	2.B.06-6	2.D.13-1 2.D.13-2 3.I.06-1	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician			
		15	01	2.B.06-5	4.D.22-1 3.I.06-1	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician			
		15	01	2.B.06-7	2.D.15 3.I.06-1 2.C.26 2.D.34	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician			
		15	01	2.B.06-9	4.D.13 3.I.06-1 2.D.52	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician			
		15	01	2.B.06-10	2.D.24-1 3.I.06-1 2.C.26	Furnace Control Actuator	1175	003.281	Instrumentation Technician			
		15	01	2.B.06-25	2.D.45 2.I.06-1 2.C.26	Silicate Melt Susceptor Control Actuator	1372	003.281	Instrumentation Technician			
		15	01	2.A.17-7	3.I.06-1 2.C.26 2.A.44	Camera Control Actuator	0245	003.281	Instrumentation Technician			
		REVISION NO:										
		REVISION DATE:										
PREPARED BY: GRH/EMW												
APPROVED BY: GRH												
SERIES MS-1-A												
PAGE 5-2.1-06-2												

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
13	(Continued)	15	01	2.B.09	2.A.04-3 3.I.06-1 2.C.26	TV Camera Control Actuator	0899	003.281	Instrumentation Technician		
					2.A.44						
		15	01	2.B.06-14	2.A.43 3.I.06-1 2.C.26	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
					2.D.52						
		15	01	2.B.06-17	3.I.06-1 2.C.26 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
					2.B.06-1						
		15	01	2.B.06-2	3.I.06-1 2.C.26	Computer Control Actuator	0847	003.281	Instrumentation Technician		
					4.D.14						
		15	01	2.G.02-14	3.I.06-1 2.D.24-1	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
					4.E.04-1						
		15	01	1.G.02-13	3.I.06-1 2.C.26	Accident Control System Control Actuator	2261	003.281	Instrumentation Technician		
					2.D.34						
		15	01	2.B.06-27	3.I.05-1 2.C.26 2.D.15	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
					2.A.44						
		15	01	2.B.06-28	3.I.06-1 2.C.26 2.A.04-3 2.A.17-7	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician		
14	Monitor experiment conduct	01	01	3.I.06-1	2.C.26 2.A.04-3 2.B.09	Glass Processing Research Monitor	2263	003.281	Instrumentation Technician		
					2.A.44						
		01	01	2.B.06-6	2.D.13-1 2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.1-06-3	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	(Continued)	01	01	2.B.06-7	2.D.15 2.B.06-27 2.D.34	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
		01	01	2.B.06-9	4.D.13 2.B.06-17 2.D.52	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician		
		01	01	2.B.06-10	2.D.24-1 2.D.13-1 2.D.13-2	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
		01	01	2.B.06-25	2.D.45	Silicate Melt Susceptor Operation Monitor	1401	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-2	2.B.06-1	Computer Operation Monitor	1055	003.281	Instrumentation Technician		
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician		
		01	01	2.B.06-27	2.D.34 2.D.15 2.B.06-7	Atmosphere Analysis Unit Operation Monitor	1343	003.281	Instrumentation Technician		
		01	01	2.B.06-11	2.D.32	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician		
		01	01	1.G.02-14	4.D.14 2.D.24-1 2.B.06-10	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician		
36	Schedule experiment runs	13	01	3.I.06-1	2.B.06-1 2.B.06-2 2.C.26 6.A.02	Glass Processing Research Planner	1521	022.081	Chemist, Inorganic - Glass		
40	Evaluate experiment results	11	01	3.I.06-1	2.C.26 2.D.27 4.D.04-6	Glass Processing Research Evaluator	1522	022.081	Chemist, Inorganic - Glass		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.1-06-4	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
		28	01	2.D.13-1	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		28	01	2.D.13-2	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		07	01	2.B.06-5	4.D.22-1 4.C.02	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic		
		28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.B.06-7	2.D.15 4.C.02 2.B.06-27	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic		
		28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic		
		07	01	2.B.06-9	4.D.13 4.C.02 2.B.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic		
		28	01	2.D.24-1	4.D.18	Furnace Repairer	0988	828.281	Electronics Mechanic		
		07	01	2.B.06-25	2.D.45 4.C.02	Silicate Melt Susceptor Fault Identifier	1395	828.281	Electronics Mechanic		
		28	01	2.D.45	4.D.18	Silicate Melt Susceptor Repairer	1396	828.281	Electronics Mechanic		
		07	01	2.A.17-7	4.C.02 4.C.07	Camera Fault Identifier	0866	828.281	Electronics Mechanic		
		28	01	2.A.17-7	4.D.18	Camera Repairer	1195	828.281	Electronics Mechanic		
		07	01	2.B.09	2.A.04-3 4.C.02 4.C.07	TV Camera Fault Identifier	0689	828.281	Electronics Mechanic		
		28	01	2.A.04-3	4.D.18	TV Camera Repairer	0690	828.281	Electronics Mechanic		
		07	01	2.B.06-14	2.A.43 4.C.02 4.C.01 4.C.07	Holographic Device Fault Identifier	1233	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.1-10-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.1 Preparation of Glasses				BASIC FUNCTION: 10 - Unscheduled Maintenance				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE			
48	(Continued)	28	01	2.A.43	4.D.18	Holographic Device Repairer	1232	828.281	Electronics Mechanic			
		07	01	2.B.06-17	2.D.52	VHF Power Unit Fault Identifier	1103	828.281	Electronics Mechanic			
					4.C.02							
					2.B.06-9							
		28	01	2.D.52	4.D.18	VFH Power Unit Repairer	1102	828.281	Electronics Mechanic			
		07	01	2.B.06-2	2.B.06-1	Computer Fault Identifier	0523	828.281	Electronics Mechanic			
					4.C.02							
		28	01	2.B.06-1	4.D.18	Computer Repairer	0540	828.281	Electronics Mechanic			
		07	01	1.G.02-14	4.D.14	Heat Rejection System Fault Identifier	1150	828.281	Electronics Mechanic			
					4.C.02							
		28	01	4.D.14	4.D.18	Heat Rejection System Repairer	1149	828.281	Electronics Mechanic			
		07	01	1.G.02-13	4.E.04-1	Accident Control System Fault Identifier	2267	828.281	Electronics Mechanic			
					4.C.02							
		28	01	4.E.04-1	4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic			
		07	01	2.B.06-27	2.D.34	Atmosphere Analysis Unit Fault Identifier	1210	828.281	Electronics Mechanic			
					4.C.02							
					2.B.06-7							
		28	01	2.D.34	4.D.18	Atmosphere Analysis Unit Repairer	1211	828.281	Electronics Mechanic			
		07	01	2.B.06-11	2.D.32	Heating/Positioning Coil Fault Identifier	1264	828.281	Electronics Mechanic			
					4.C.02							
		28	01	2.D.32	4.D.18	Heating/Positioning Coil Repairer	1263	828.281	Electronics Mechanic			
		07	01	2.B.06-28	2.A.44	Viewing Device Fault Identifier	1222	828.281	Electronics Mechanic			
					4.C.02							
					4.C.07							
		28	01	2.A.44	4.D.18	Viewing Device Repairer	1223	828.281	Electronics Mechanic			
					2.D.24-1							
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-2.1-10-2		

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL**

#### **REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-2**

**EXPERIMENT: 2.0 LEVITATION EXPERIMENTS  
2.2 SUPERCOOLING & HOMOGENEOUS  
NUCLEATION**

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Determine appropriate equipment configuration	11	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.30-1 2.D.42 2.D.34 2.D.53 2.A.43 4.D.14 2.D.32 2.A.44 2.A.04-3 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
		13	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.30-1 2.D.42 2.D.34 2.D.53 2.A.43 4.D.14 2.D.32 2.A.44 2.A.04-3 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.2-04-1	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	Set up apparatus in appropriate configuration	18	01	2.C.26	4.D.20	Glass Samples Unstower	1513	003.281	Instrumentation Technician		
		22	01	2.C.26	1.G.01-18 1.G.01-2 1.G.01-6	Glass Samples Translocator	1514	000.000	General Technical Skill		
		27	01	2.C.26	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Samples Installer	1515	003.181	Electrical Technician		
		18	01	2.C.23	4.D.20	Metal Sample Unstower	1257	003.281	Instrumentation Technician		
		22	01	2.C.23	1.G.01-18 1.G.01-2 1.G.01-6	Metal Sample Translocator	1256	000.000	General Technical Skill		
		27	01	2.C.23	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Installer	1254	003.181	Electrical Technician		
		18	01	2.C.25	4.D.20	Materials Sample Unstower	1354	003.281	Instrumentation Technician		
		22	01	2.C.25	1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Translocator	1355	000.000	General Technical Skill		
		27	01	2.C.25	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Installer	1356	003.181	Electrical Technician		
		18	01	2.D.13-4	4.D.02	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.D.13-2	2.B.06-4 4.D.02	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.B.06-1	2.B.06-6 4.D.02	Computer Unstower	1054	003.281	Instrumentation Technician		
		18	01	2.B.06-2	2.B.06-2 4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	2.D.15	4.D.02 2.B.05-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	Set up apparatus in appropriate configuration	18	01	2.C.26	4.D.20	Glass Samples Unstower	1513	003.281	Instrumentation Technician		
		22	01	2.C.26	1.G.01-18 1.G.01-2 1.G.01-6	Glass Samples Translocator	1514	000.000	General Technical Skill		
		27	01	2.C.26	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Samples Installer	1515	003.181	Electrical Technician		
		18	01	2.C.23	4.D.20	Metal Sample Unstower	1257	003.281	Instrumentation Technician		
		22	01	2.C.23	1.G.01-18 1.G.01-2 1.G.01-6	Metal Sample Translocator	1256	000.000	General Technical Skill		
		27	01	2.C.23	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Installer	1254	003.181	Electrical Technician		
		18	01	2.C.25	4.D.20	Materials Sample Unstower	1354	003.281	Instrumentation Technician		
		22	01	2.C.25	1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Translocator	1355	000.000	General Technical Skill		
		27	01	2.C.25	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Installer	1356	003.181	Electrical Technician		
		18	01	2.D.13-4	4.D.02 2.B.06-4	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician		
		18	01	2.B.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	2.D.15	4.D.02 2.B.05-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		

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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	(Continued)	18	01	4.B.01-1	4.D.02	Accident Control System Unstower	2253	003.281	Instrumentation Technician		
					1.G.02-13						
		18	01	2.D.32	4.D.02	Heating/Positioning Coil Unstower	1271	003.281	Instrumentation Technician		
					4.D.20						
		22	01	2.D.32	1.G.01-18	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill		
					1.G.01-2						
					1.G.01-6						
		27	01	2.D.32	2.D.52	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician		
					2.D.13-4						
					2.D.13-2						
					4.D.22-1						
					2.B.06-11						
					3.I.05-4						
		18	01	2.A.44	4.D.02	Viewing Device Unstower	1215	003.281	Instrumentation Technician		
					4.D.20						
		22	01	2.A.44	1.G.01-18	Viewing Device Translocator	1216	000.000	General Technical Skill		
					1.G.01-2						
					1.G.01-6						
		27	01	2.A.44	2.C.25	Viewing Device Installer	1217	003.181	Electrical Technician		
					2.C.23						
			2.C.26								
			2.D.13-4								
			2.D.13-2								
			2.D.32								
			2.B.06-28								
			3.I.05-4								
18	01	2.A.30-1	4.D.20	Calorimeter Unstower	1482	003.281	Instrumentation Technician				
			4.D.02								
22	01	2.A.30-1	1.G.01-18	Calorimeter Translocator	1481	000.000	General Technical Skill				
			1.G.01-2								
			1.G.01-6								
27	01	2.A.30-1	2.B.06-29	Calorimeter Installer	1480	003.181	Electrical Technician				
			2.C.25								
			2.C.23								
			2.C.26								
			3.I.05-4								
18	01	2.D.42	4.D.20	Friction Measuring Device Unstower	1494	003.281	Instrumentation Technician				
			4.D.02								
22	01	2.D.42	1.G.01-18	Friction Measuring Device Translocator	1493	000.000	General Technical Skill				
			1.G.01-2								
			1.G.01-6								
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
2	(Continued)	27	01	2.D.42	2.B.06-30 2.C.25 2.C.26 2.C.23 3.I.05-4	Friction Measuring Device Installer	1492	003.181	Electrical Technician	
		18	01	2.D.53	4.D.20 4.D.02	Chill System Unstower	1068	003.281	Instrumentation Technician	
		22	01	2.D.53	1.G.01-18 1.G.01-2 1.G.01-6	Chill System Translocator	1069	000.000	General Technical Skill	
		27	01	2.D.53	2.B.06-31 2.D.13-2 2.D.13-4 2.D.42 2.A.30-1 2.C.23 2.C.25 2.C.26 3.I.05-4	Chill System Installer	1067	003.181	Electrical Technician	
3	Check equipment functioning	03	01	2.D.13-4	4.D.09	Environmental Chamber Inspector	2271	722.281	Inspector, Systems	
		03	01	2.D.13-2	4.D.09	Environmental Chamber Inspector	2271	722.281	Inspector, Systems	
		03	01	2.D.15	4.D.09	Atmosphere Supply/Control System Inspector	1986	722.281	Inspector, Systems	
		03	01	4.D.13	4.D.09	Power Conditioning/Distribution System Inspector	2272	722.281	Inspector, Systems	
		03	01	2.A.30-1	4.D.09	Calorimeter Inspector	2273	722.281	Inspector, Systems	
		03	01	2.D.42	4.D.09	Friction Measuring Device Inspector	2274	722.281	Inspector, Systems	
		03	01	2.D.34	4.D.09	Atmosphere Analysis Unit Inspector	2275	722.281	Inspector, Systems	
		03	01	2.D.53	4.D.09	Chill System Inspector	2276	722.281	Inspector, Systems	
		03	01	2.A.43	4.D.09	Holographic Device Inspector	2270	722.281	Inspector, Systems	
		03	01	4.D.14	4.D.09	Heat Rejection System Inspector	2277	722.281	Inspector, Systems	
		03	01	2.D.32	4.D.09	Heating/Positioning Coils Inspector	2278	722.281	Inspector, Systems	
		03	01	2.A.44	4.D.09	Viewing Device Inspector	2279	722.281	Inspector, Systems	
		03	01	2.A.04-3	4.D.09	TV Camera Inspector	0079	722.281	Inspector, Systems	
		03	01	2.D.52	4.D.09	VHF Power Unit Inspector	2280	722.281	Inspector, Systems	
		03	01	4.E.04-1	4.D.09	Accident Control System Inspector	2281	722.281	Inspector, Systems	
		03	01	4.D.22-1	4.D.09	General Purpose Lab Bench Inspector	2282	722.281	Inspector, Systems	
14		01		2.B.06-4	2.D.15-4	Environmental Chamber Tester	2283	003.181	Electrical Technician	
14		01		2.B.06-6	2.D.13-2	Environmental Chamber Tester	2283	003.181	Electrical Technician	
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-2.2-04-5

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
3	(Continued)	14	01	2.B.06-7	2.D.15	Atmosphere Supply/Control System Tester	1987	003.181	Electrical Technician		
		14	01	2.B.06-9	4.D.13	Power Conditioning/Distribution System Tester	2284	003.181	Electrical Technician		
		14	01	2.B.06-29	2.A.30-1	Calorimeter Tester	2285	003.181	Electrical Technician		
		14	01	2.B.06-30	2.D.42	Friction Measuring Device Tester	2286	003.181	Electrical Technician		
		14	01	2.B.06-27	2.D.34	Atmosphere Analysis Unit Tester	2287	003.181	Electrical Technician		
		14	01	2.B.06-31	2.D.53	Chill System Tester	2288	003.181	Electrical Technician		
		14	01	2.B.06-14	2.A.43	Holographic Device Tester	1449	003.181	Electrical Technician		
		14	01	1.G.02-14	4.D.14	Heat Rejection System Tester	2290	003.181	Electrical Technician		
		14	01	2.B.06-11	2.D.32	Heating/Positioning Coil Tester	2291	003.181	Electrical Technician		
		14	01	2.B.06-28	2.A.44	Viewing Device Tester	2292	003.181	Electrical Technician		
		14	01	2.B.09	2.A.04-3	TV Camera Tester	0633	003.181	Electrical Technician		
		14	01	2.B.06-17	2.D.52	VHF Power Unit Tester	2293	003.181	Electrical Technician		
		14	01	1.G.02-13	4.E.04-1	Accident Control System Tester	2294	003.181	Electrical Technician		
		14	01	2.B.06-2	2.B.06-1	Computer Tester	2295	003.181	Electrical Technician		
4	Program controls for prescribed conditions	15	01	2.B.06-4	2.D.13-4 3.I.05-4 2.C.23 2.C.25 2.C.26	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.D.13-2 3.I.05-4 2.C.23 2.C.25 2.C.26	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-7	2.D.15 3.I.05-4 2.C.23 2.C.25 2.C.26	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.05-4 2.C.23 2.C.25 2.C.26	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Necleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	15	01	2.B.06-29	2.A.30-1 3.I.05-4 2.C.23 2.C.25 2.C.26	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
		15	01	2.B.06-30	2.D.42 3.I.05-4 2.C.23 2.C.25 2.C.26	Friction Measuring Device Control	1496	003.281	Instrumentation Technician		
		15	01	2.B.06-27	2.D.34 3.I.05-4 2.C.23 2.C.25 2.C.26	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		15	01	2.B.06-31	2.D.53 3.I.05-4 2.C.23 2.C.25 2.C.26	Chill System Control Actuator	1181	003.281	Instrumentation Technician		
		15	01	2.B.06-14	2.A.43 3.I.05-4 2.C.23 2.C.25 2.C.26	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
		15	01	1.G.02-14	4.D.14 3.I.05-4 2.C.23 2.C.25 2.C.26	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	2.B.06-11	2.D.32 3.I.05-4 2.C.23 2.C.25 2.C.26	Heating/Positioning Coils Control Actuator	1260	003.281	Instrumentation Technician		
		15	01	2.B.06-28	2.A.44 3.I.05-4 2.C.23 2.C.25 2.C.26	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-04-7	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
4	(Continued)	15	01	2.B.09	2.A.04-3 3.I.05-4 2.C.23 2.C.25 2.C.26	TV System Control Actuator	1549	003.281	Instrumentation Technician		
		15	01	2.B.06-17	2.D.52 3.I.05-4 2.C.23 2.C.25 2.C.26	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
		15	01	2.B.06-2	2.B.06-1 3.I.05-4 2.C.23 2.C.25 2.C.26	Computer Control Actuator	0847	003.281	Instrumentation Technician		
		15	01	1.G.02-13	4.E.04-1 3.I.05-4 2.C.23 2.C.25 2.C.26	Accident Control System Control Actuator	2261	003.281	Instrumentation Technician		
		15	01	2.B.06-5	4.D.22-1 3.I.05-4 2.C.23 2.C.25 2.C.26	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician		
32	Reconfigure experiments	26	01	2.C.26	2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Sample Remover	1516	003.281	Instrumentation Technician		
		27	01	2.C.26	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Sample Installer	1515	003.181	Electrical Technician		
		26	01	2.C.23	2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Remover	1255	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-04-8	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
32	(Continued)	27	01	2.C.23	3.I.05-4 2.A.30-1 2.A.42 2.D.53 2.D.32	Metal Sample Installer	1254	003.181	Electrical Technician	
		26	01	2.C.25	2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Remover	1357	003.181	Electrical Technician	
		27	01	2.C.25	3.I.05-4 2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Installer	1356	003.181	Electrical Technician	
		26	01	2.D.13-4	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician	
		27	01	2.D.13-4	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician	
		26	01	2.D.13-2	3.I.05-4 4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician	
		27	01	2.D.13-2	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician	
		15	01	2.B.06-1	3.I.05-4 2.C.26 2.C.25 2.C.23	Computer Control Actuator	0847	003.281	Instrumentation Technician	
		15	01	2.B.06-2	3.I.05-4 2.C.26 2.C.23 2.C.25 2.B.06-1	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician	
		15	01	2.B.06-7	3.I.05-4 2.D.15 2.C.26 2.C.23 2.C.25	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician	
		26	01	2.D.15	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Atmosphere Supply and Control System Module Remover	1127	003.181	Electrical Technician	
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	27	01	2.D.15	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Atmosphere Supply and Control System Module Installer	1128	003.181	Electrical Technician		
		15	01	2.B.06-6	2.D.13-2 3.I.05-4 2.C.26 2.C.23 2.C.25	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-4	2.D.13-4 3.I.05-4 2.C.26 2.C.23 2.C.25	Environmental Chamber Control	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.05-4 2.C.26 2.C.23 2.C.25	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.05-4 2.C.25 2.C.23 2.C.25 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician		
		27	01	4.D.13	3.I.05-4 2.C.26 4.D.18 2.C.23 2.C.25	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-27	2.D.34 3.I.05-4 2.C.26 2.C.23 2.C.25	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		26	01	2.D.34	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
32	(Continued)	27	01	2.D.34	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Atmosphere Analysis Unit Module Installer	1209	003.181	Electrical Technician	
		26	01	2.A.43	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Holographic Device Remover	1237	003.181	Electrical Technician	
		27	01	2.A.43	3.I.05-4 2.C.26 4.D.18 2.C.23 2.C.25	Holographic Device Installer	1238	003.181	Electrical Technician	
		26	01	2.A.43	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Holographic Device Module Remover	1235	003.181	Electrical Technician	
		27	01	2.A.43	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.18	Holographic Device Module Installer	1234	003.181	Electrical Technician	
		15	01	2.B.06-17	2.D.52 3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician	
		26	01	2.D.52	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician	
		27	01	2.D.52	3.I.05-4 2.C.26 2.C.23 2.C.25 4.D.13 2.B.06-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician	

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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.D.52	3.I.05-4 2.C.26 2.C.23 2.C.25 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician		
		27	01	2.D.52	3.I.05-4 2.C.26 2.C.23 2.C.25 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Installer	1096	003.181	Electrical Technician		
		15	01	1.G.02-14	4.D.14 3.I.05-4 2.C.26 2.D.13-4 2.D.13-2 2.C.23 2.C.25	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		26	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-4 2.D.13-2	TV Camera Remover	0661	003.181	Electrical Technician		
		27	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-4 2.D.13-2 3.I.05-4	TV Camera Installer	0306	003.181	Electrical Technician		
		15	01	2.B.06-11	2.D.32 3.I.05-4 2.C.26 2.C.23 2.C.25 2.D.52 2.D.13-4 2.D.13-2 4.D.22-1	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE 45-2.2-04-12		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.D.32	3.I.05-4 2.C.26 2.C.23 2.C.25 2.D.52 2.D.13-4 2.D.13-2 4.D.22-1	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician		
		27	01	2.D.32	2.B.06-11 3.I.05-4 2.C.26 2.C.23 2.C.25 2.D.52 2.D.13-4 2.D.13-2 4.D.22-1	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician		
		15	01	2.B.06-28	2.B.06-11 2.A.44 3.I.05-4 2.C.23 2.C.25 2.D.13-4 2.D.13-2 4.D.22-1	Viewing Device Control Actuator 2.C.26	2262	003.281	Instrumentation Technician		
		26	01	2.A.44	2.D.13-2 3.I.05-4 2.C.26 2.C.23 2.C.25 2.D.13-4 2.D.13-2 2.B.06-28	Viewing Device Remover	1218	003.181	Electrical Technician		
		27	01	2.A.44	3.I.05-4 2.C.26 2.C.23 2.C.25 2.D.13-4 2.D.13-2 2.B.06-28	Viewing Device Installer	1217	003.181	Electrical Technician		
		15	01	2.B.06-29	2.A.30-1 3.I.05-4 2.C.26 2.C.23 2.C.25	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-04-13	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.A.30-1	2.B.06-29 2.C.25 2.C.23 2.C.26 3.I.05-4	Calorimeter Remover	1479	003.181	Electrical Technician		
		27	01	2.A.30-1	2.B.06-29 2.C.25 2.C.23 2.C.26 3.I.05-4	Calorimeter Installer	1480	003.181	Electrical Technician		
		15	01	2.B.06-30	2.D.42 2.C.25 2.C.26 2.C.23 3.I.05-4	Friction Measuring Device Control Actuator	1496	003.281	Instrumentation Technician		
		26	01	2.D.42	2.B.06-30 2.C.25 2.C.26 2.C.23 3.I.05-4	Friction Measuring Device Remover	1491	003.181	Electrical Technician		
		27	01	2.D.42	2.B.06-30 2.C.25 2.C.26 2.C.23 3.I.05-4	Friction Measuring Device Installer	1091	003.181	Electrical Technician		
		15	01	2.B.06-31	2.D.53 3.I.05-4 2.C.23 2.C.25 2.C.26	Chill System Control Actuator	1181	003.281	Instrumentation Technician		
		26	01	2.D.53	2.B.06-31 2.C.23 2.C.25 2.C.26 3.I.05-4	Chill System Remover	1070	003.181	Electrical Technician		
		27	01	2.D.53	2.B.06-31 2.C.23 2.C.25 2.C.26 3.I.05-4	Chill System Installer	1067	003.181	Electrical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH			SERIES MS-1-A

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
35	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator		
		08	01	2.D.52	4.C.01	VHF Power Unit Calibrator	1097	710.884	Calibrator		
		08	01	2.D.32	4.C.01	Heating/Positioning Coil Calibrator	1333	710.884	Calibrator		
		08	01	2.A.43	4.C.01	Holographic Device Calibrator	1227	710.884	Calibrator		
		08	01	2.A.30-1	4.C.01	Calorimeter Calibrator	0380	710.884	Calibrator		
		08	01	2.D.42	4.C.01	Friction Measuring Device Calibrator	1488	710.884	Calibrator		
46	Install data recording equipment	18	01	4.D.10	4.D.20 4.D.02	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.2-04-15	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
12	Secure samples in containers	26	01	2.C.25	2.A.30-1 2.D.42 2.D.53 2.D.32	Materials Sample Remover	1357	003.181	Electrical Technician		
		22	01	2.C.25	1.G.01-18 1.G.01-6 1.G.01-2	Materials Sample Translocator	1355	000.000	General Technical Skill		
		17	01	2.C.25	2.D.25 4.D.20 4.D.02	Materials Sample Stower	1371	003.281	Instrumentation Technician		
		26	01	2.C.23	2.A.30-1 2.D.42 2.D.53 2.D.32	Metal Sample Remover	1255	003.181	Electrical Technician		
		22	01	2.C.23	1.G.01-18 1.G.01-6 1.G.01-2	Metal Sample Translocator	1256	000.000	General Technical Skill		
		17	01	2.C.23	2.D.25 4.D.20 4.D.02	Metal Sample Stower	1341	003.281	Instrumentation Technician		
		26	01	2.C.26	2.A.30-1 2.D.42 2.D.53 2.D.32	Glass Sample Remover	1516	003.181	Electrical Technician		
		22	01	2.C.26	1.G.01-18 1.G.01-6 1.G.01-2	Glass Sample Translocator	1514	000.000	General Technical Skill		
		17	01	2.C.26	2.D.25 4.D.20 4.D.02	Glass Sample Stower	1517	003.281	Instrumentation Technician		
13	Clean experiment apparatus	19	01	2.D.13-4	2.C.23 2.C.25 2.C.26 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.A.30-1	2.C.23 2.C.25 2.C.26 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.2-05-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
13	(Continued)	19	01	2.A.30-1	2.C.23 2.C.25 2.C.26 4.D.06	Calorimeter Cleaner	1500	003.281	Instrumentation Technician		
		19	01	2.D.42	2.C.23 2.C.25 2.C.26 4.D.06	Friction Measuring Device Cleaner	1498	003.281	Instrumentation Technician		
		19	01	2.D.32	2.C.23 2.C.25 2.C.26 4.D.06	Heating/Positioning Coils Cleaner	1336	003.281	Instrumentation Technician		
		19	01	2.D.27	2.C.23 2.C.25 2.C.26 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician		
14	Dismantle experiment setup and secure	17	01	2.D.13-4	2.B.06-4 4.D.02	Environmental Chamber Stower	1061	003.281	Instrumentation Technician		
		17	01	2.D.1302	2.B.06-6 4.D.02	Environmental Chamber Stower	1061	003.281	Instrumentation Technician		
		17	01	2.B.06-1	2.B.06-2 4.D.02	Computer Stower	1160	003.281	Instrumentation Technician		
		17	01	2.B.06-2	4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician		
		17	01	2.D.15	2.B.06-7 4.D.02	Atmosphere Supply and Control System Stower	1169	003.281	Instrumentation Technician		
		17	01	4.D.13	2.B.06-9 4.D.02	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician		
		16	01	2.B.06-27	2.D.34	Atmosphere Analysis Unit Control Deactuator	1507	003.281	Instrumentation Technician		
		26	01	2.D.34	2.B.06-27 2.D.13-4 2.D.13-2 2.D.15	Atmosphere Analysis Unit Remover	1206	003.181	Electrical Technician		
		22	01	2.D.34	1.G.01-18 1.G.01-6 1.G.01-2	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill		
		17	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Stower	1207	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/ENW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.2-05-2	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	(Continued)	16	01	2.B.06-14	2.A.43	Holographic Device Control Deactuator	1508	003.281	Instrumentation Technician		
		26	01	2.A.43	2.B.06-14	Holographic Device Remover	1237	003.181	Electrical Technician		
		22	01	2.A.43	1.G.01-18	Holographic Device Translocator	1239	000.000	General Technical Skill		
					1.G.01-6						
					1.G.01-2						
		17	01	2.A.43	4.D.02	Holographic Device Stower	1236	003.281	Instrumentation Technician		
					4.D.20						
		16	01	2.B.06-17	2.D.52	VHF Power Unit Control Deactuator	1509	003.281	Instrumentation Technician		
		26	01	2.D.52	2.B.06-17	VHF Power Unit Remover	1094	003.181	Electrical Technician		
					4.D.13						
		22	01	2.D.52	1.G.01-18	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
					1.G.01-6						
					1.G.01-2						
		17	01	2.D.52	4.D.02	VHF Power Unit Stower	1098	003.281	Instrumentation Technician		
					4.D.20						
		17	01	4.D.14	1.G.02-14	Heat Rejection System Stower	1145	003.281	Instrumentation Technician		
					4.D.02						
		17	01	4.D.22-1	4.D.02	General Purpose Lab Bench Stower	2256	003.281	Instrumentation Technician		
		16	01	2.B.09	2.A.04-3	TV System Control Deactuator	2068	003.281	Instrumentation Technician		
		26	01	2.A.04-3	1.G.01-7	TV Camera Remover	0661	003.181	Electrical Technician		
					2.B.09						
					2.D.13-4						
					2.D.13-2						
		22	01	2.A.04-3	1.G.01-18	TV Camera Translocator	0026	000.000	General Technical Skill		
					1.G.01-6						
					1.G.01-2						
		17	01	2.A.04-3	4.D.02	TV Camera Stower	0064	003.281	Instrumentation Technician		
					4.D.20						
		17	01	4.B.01-1	4.D.02	Accident Control System Stower	2258	003.281	Instrumentation Technician		
					1.G.02-13						
		16	01	2.B.06-11	2.D.32	Heating/Positioning Coil Control Deactuator	1505	003.281	Instrumentation Technician		
		26	01	2.D.32	2.D.52	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician		
					2.D.13-4						
					2.D.13-2						
					4.D.22-1						
					2.B.06-11						
		22	01	2.D.32	1.G.01-18	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill		
					1.G.01-6						
					1.G.01-2						
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-05-3	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
14	(Continued)	17	01	2.D.32	4.D.02	Heating/Positioning Coil Stower	1267	003.281	Instrumentation Technician		
					4.D.20						
		16	01	2.B.06-28	2.A.44	Viewing Device Control Deactuator	2296	003.281	Instrumentation Technician		
		26	01	2.A.44	2.D.13-4	Viewing Device Remover	1218	003.181	Electrical Technician		
					2.D.13-2						
		22	01	2.A.44	2.B.06-28	Viewing Device Translocator	1216	000.000	General Technical Skill		
					1.G.01-18						
					1.G.01-6						
					1.G.01-2						
		17	01	2.A.44	4.D.02	Viewing Device Stower	1219	003.281	Instrumentation Technician		
					4.D.20						
		16	01	2.B.06-29	2.A.30-1	Calorimeter Control Deactuator	0393	003.281	Instrumentation Technician		
		26	01	2.A.30-1	2.D.13-4	Calorimeter Remover	1479	003.181	Electrical Technician		
					2.D.13-2						
					2.B.06-29						
		22	01	2.A.30-1	1.G.01-18	Calorimeter Translocator	1481	000.000	General Technical Skill		
					1.G.01-6						
					1.G.01-2						
		17	01	2.A.30-1	4.D.20	Calorimeter Stower	1499	003.281	Instrumentation Technician		
					4.D.02						
16	01	2.B.06-20	2.D.42	Friction Measuring Device Control Deactuator	1495	003.281	Instrumentation Technician				
26	01	2.D.42	2.B.06-30	Friction Measuring Device Remover	1491	003.181	Electrical Technician				
			2.D.13-2								
			2.D.13-4								
22	01	2.D.42	1.G.01-18	Friction Measuring Device Translocator	1493	000.000	General Technical Skill				
			1.G.01-6								
			1.G.01-2								
17	01	2.D.42	4.D.20	Friction Measuring Device Stower	1497	003.281	Instrumentation Technician				
			4.D.02								
16	01	2.B.06-31	2.D.53	Chill System Control Deactuator	2297	003.281	Instrumentation Technician				
26	01	2.D.53	2.B.06-31	Chill System Remover	1070	003.181	Electrical Technician				
			2.D.13-4								
			2.D.13-2								
22	01	2.D.53	1.G.01-18	Chill System Translocator	1069	000.000	General Technical Skill				
			1.G.01-6								
			1.G.01-2								
17	01	2.D.53	4.D.20	Chill System Stower	1073	003.281	Instrumentation Technician				
			4.D.02								
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EWM		APPROVED BY: GRH		SERIES MS-1-A		PAGE 5-2.2-05-4	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
22	Prepare photo prints and enlargements	06	01	4.8.08	2.A.27-6	Film Developer	0328	976.782	Film Developer	MS-3	
		06	01	4.D.19	2.A.27-6	Film Developer	0328	976.782	Film Developer		
23	Transmit photos to ground by TV	10	01	2.A.04-3	2.B.09	TV Camera Controller	0334	003.181	Electrical Technician	MS-3	
		15	01	2.8.09	2.A.04-3 5.L.04	TV System Control Actuator	1549	003.281	Instrumentation Technician		
41	Communicate experiment results to earth	05	01	4.A.02	3.I.05-4 2.C.23 2.C.25 2.C.26	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.05-4	4.A.02 2.C.23 2.C.25 2.C.26	Crystal Growth Research Coordinator	2298	022.081	Chemist, Inorganic - Glass		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-05-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
6	Periodically monitor melting process	01	01	3.I.05-4	2.B.06-11 2.D.32 2.C.23 2.C.25 2.C.26	Crystal Growth Process Monitor	1512	022.081	Chemist, Inorganic - Glass	MS-5
		02	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.B.09 2.A.04-3 2.B.06-28 2.A.44	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass	
7	Continuously monitor ingot preparation process	01	01	TBD	TBD	TBD	TBD	TBD	TBD	
8	Check operation of automatic measuring equipment	01	01	2.B.06-29	2.A.30-1	Calorimeter Operation Monitor	0391	003.281	Instrumentation Technician	
		01	01	2.B.06-30	2.D.42	Friction Measuring Device Operation Monitor	1487	003.281	Instrumentation Technician	
		01	01	2.B.06-14	2.A.43	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician	
9	Determine second cooling cycle requirements	11	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.53 4.D.14	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
		13	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.53 4.D.14	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
10	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.05-4 2.C.23 2.C.25 2.C.26 2.D.53 4.D.14	Radio Communicator	0206	003.187	Radio Engineer	
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-2.2-06-1

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	Program equipment for second cooling cycle	15	01	2.B.06-4	2.D.13-4 3.I.05-4 2.C.23 2.C.25 2.C.26	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.D.13-2 3.I.05-4 2.C.23 2.C.25 2.C.26	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-7	2.D.15 3.I.05-4 2.C.23 2.C.25 2.C.26	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.05-4 2.C.23 2.C.25 2.C.26	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		15	01	2.B.06-29	2.A.30-1 3.I.05-4 2.C.23 2.C.25 2.C.26	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
		15	01	2.B.06-30	2.D.42 3.I.05-4 2.C.23 2.C.25 2.C.26	Friction Measuring Device Control Actuator	1496	003.281	Instrumentation Technician		
		15	01	2.B.06-27	2.D.34 3.I.05-4 2.C.23 2.C.25 2.C.26	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		15	01	2.B.06-31	2.D.53 3.I.05-4 2.C.23 2.C.25 2.C.26	Chill System Control Actuator	1181	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-05-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	15	01	2.B.06-14	2.A.43 3.I.05-4 2.C.23 2.C.25 2.C.26	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
16	Measure sample weights and dimensions	15	01	2.B.06-14	2.A.43 2.C.23 2.C.25 2.C.26 3.I.05-4	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
17	Prepare (metallographic) sections of samples	27 27 27 10	01 01 01 01	2.C.23 2.C.25 2.C.26 2.D.27	2.D.27 2.D.27 2.D.27 2.C.23 2.C.25 2.C.26 3.I.05-4	Metal Sample Installer Materials Sample Installer Glass Sample Installer Materials Analysis Equipment Controller	1254 1356 1515 1049	003.181 003.181 003.181 011.281	Electrical Technician Electrical Technician Electrical Technician Metallurgist Assistant		
18	Perform metallographic examination of sectioned sample grain structure	12	01	2.C.23	2.D.27 3.I.05-4 2.A.18	Metal Sample Structure Analyzer	2301	011.281	Metallurgist Assistant		
				2.C.25	2.D.27 3.I.05-4 2.A.18	Materials Sample Structure Analyzer	2300	011.281	Metallurgist Assistant		
				2.C.26	2.D.27 3.I.05-4 2.A.18	Glass Sample Structure Analyzer	2302	011.281 022.081	Metallurgist Assistant Chemist, Inorganic - Glass		
19	Dictate notes on voice recorder	10	01	4.D.05-1	3.I.05-4 2.C.23 2.C.25 2.C.26	Tape Recorder Controller	0862	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-05-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
19	(Continued)	05	01	3.I.05-4	4.D.05-1 2.C.23 2.C.25 2.C.26	Crystal Growth Data Recorder	1454	000.000	General Technical Skill	MS-3
20	Prepare photographs of metallographic sections	15	01	4.D.04-3	2.C.23 2.C.25 2.C.26 2.F.04 2.A.18	Camera Control Actuator	0245	003.281	Instrumentation Technician	
		06	01	2.A.27	4.B.08	Film Processor	0328	976.782	Film Developer	
21	Analyze metallograph section photographs	12	01	3.I.05-4	2.A.27 2.C.23 2.C.25 2.C.26 4.D.09	Crystal Growth Structure Analyzer	1445	022.081	Chemist, Inorganic - Glass	
24	Initiate experiment sequence	15	01	2.B.06-2	2.B.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician	
36	Schedule experiment runs	11	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGES-2.2-06-4

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
36	(Continued)	13	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
38	Define experiment conditions	11	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
		13	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.D.13-4 2.D.13-2 4.D.13 2.D.53 4.D.14 2.B.06-1 6.A.02	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
39	Monitor experiment performance	01	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.A.04-3 2.B.09 2.A.44	Crystal Growth Research Monitor	2303	003.281	Instrumentation Technician	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.2-05-5



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
39	(Continued)	01	01	2.B.06-4	2.D.13-4	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		01	01	2.B.06-6	2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		01	01	2.B.06-7	2.D.15 2.B.06-27	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
		01	01	2.B.06-9	2.D.34 4.D.13 2.B.06-17	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-2	2.B.06-1	Computer Operation Monitor	1055	003.281	Instrumentation Technician		
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician		
		01	01	2.B.06-27	2.D.34 2.D.15 2.B.06-7	Atmosphere Analysis Unit Operation Monitor	1343	003.281	Instrumentation Technician		
		01	01	2.B.06-11	2.D.32	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician		
		01	01	1.G.02-14	4.D.14 2.D.24-1 2.B.06-10	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician		
		01	01	2.B.06-29	2.A.30-1	Calorimeter Operation Monitor	0391	003.281	Instrumentation Technician		
		01	01	2.B.06-30	2.D.42	Friction Measuring Device Operation Monitor	1487	003.281	Instrumentation Technician		
		01	01	2.B.06-31	2.D.53	Chill System Operation Monitor	1074	003.281	Instrumentation Technician		
40	Evaluate experiment results	11	01	3.I.05-4	2.C.23 2.C.25 2.C.26 2.F.02-4	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.2-05-6	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-4	2.D.13-4	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
					4.C.02						
			07	01	2.B.06-6	2.D.13-2	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic	
						4.C.02					
			28	01	2.D.13-4	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic	
			28	01	2.D.13-2	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic	
			07	01	2.B.05-5	4.D.22-1	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic	
						4.C.02					
			28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic	
			07	01	2.B.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic	
			28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic	
			07	01	2.B.06-7	2.D.15	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic	
						4.C.02					
						2.B.06-27					
			28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic	
			07	01	2.B.06-9	4.D.13	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic	
						4.C.02					
						2.B.06-17					
			28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic	
			07	01	2.B.09	2.A.04-3	TV Camera Fault Identifier	0689	828.281	Electronics Mechanic	
				4.C.02							
				4.C.07							
	28	01	2.A.04-3	4.D.18	TV Camera Repairer	0690	828.281	Electronics Mechanic			
	07	01	2.B.06-14	2.A.43	Holographic Device Fault Identifier	1233	828.281	Electronics Mechanic			
				4.C.02							
				4.C.01							
				4.C.07							
	28	01	2.A.43	4.D.18	Holographic Device Repairer	1232	828.281	Electronics Mechanic			
	07	01	2.B.06-17	2.D.52	VHF Power Unit Fault Identifier	1103	828.281	Electronics Mechanic			
				4.C.02							
				2.B.06-9							
	28	01	2.D.52	4.D.18	VHF Power Unit Repairer	1102	828.281	Electronics Mechanic			
	07	01	2.B.06-2	2.B.06-1	Computer Fault Identifier	0523	828.281	Electronics Mechanic			
				4.C.02							
	28	01	2.B.06-1	4.D.18	Computer Repairer	0540	828.281	Electronics Mechanic			
	07	01	1.G.02-14	4.D.14	Heat Rejection System Fault Identifier	1150	828.281	Electronics Mechanic			
				4.C.02							
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-2.2-10-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.2 Supercooling and Homogeneous Nucleation				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	(Continued)	28	01	4.D.14	4.D.18	Heat Rejection System Repairer	1149	828.281	Electronics Mechanic		
		07	01	1.G.02-13	4.E.04-1	Accident Control System Fault Identifier	2267	828.281	Electronics Mechanic		
		28	01	4.E.04-1	4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic		
		07	01	2.B.06-27	2.D.34	Atmosphere Analysis Unit Fault Identifier	1210	828.281	Electronics Mechanic		
					4.C.02						
					2.B.06-7						
		28	01	2.D.34	4.D.18	Atmosphere Analysis Unit Repairer	1211	828.281	Electronics Mechanic		
		07	01	2.B.06-11	2.D.32	Heating/Positioning Coil Fault Identifier	1264	828.281	Electronics Mechanic		
					4.C.02						
		28	01	2.D.32	4.D.18	Heating/Positioning Coil Repairer	1263	828.281	Electronics Mechanic		
		07	01	2.B.06-28	2.A.44	Viewing Device Fault Identifier	1222	828.281	Electronics Mechanic		
					4.C.02						
					4.C.07						
		28	01	2.A.44	4.D.18	Viewing Device Repairer	1223	828.281	Electronics Mechanic		
		07	01	2.B.06-29	2.A.30-1	Calorimeter Fault Identifier	0376	828.281	Electronics Mechanic		
					4.C.02						
		28	01	2.A.30-1	4.D.18	Calorimeter Repairer	1474	828.281	Electronics Mechanic		
07	01	2.B.06-30	2.D.42	Friction Measuring Device Fault Identifier	1484	828.281	Electronics Mechanic				
			4.C.02								
28	01	2.D.42	4.D.18	Friction Measuring Device Repairer	1483	828.281	Electronics Mechanic				
07	01	2.B.06-31	2.D.53	Chill System Fault Identifier	1078	828.281	Electronics Mechanic				
			4.C.02								
28	01	2.D.53	4.D.18	Chill System Repairer	1077	828.281	Electronics Mechanic				
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-2.2-10-2	

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-2**

**EXPERIMENT: 2.0 LEVITATION EXPERIMENTS  
2.3 CRYSTAL GROWTH FROM SOLUTIONS**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	Place sample in sample holder	18	01	2.C.25	4.D.20	Materials Sample Unstower	1354	003.281	Instrumentation Technician		
		22	01	2.C.25	2.D.25	Materials Sample Translocator	1355	000.000	General Technical Skill		
					1.G.01-18						
3	Emplace sample holder in experiment unit	27	01	2.C.25	1.G.01-2	Materials Sample Installer	1356	003.181	Electrical Technician		
					1.G.01-6						
		27	01	2.D.19-3	2.D.58	Sample Holder Installer	1366	003.181	Electrical Technician		
4	Add dopant to liquid solution samples	18	01	2.C.04-10	2.D.24-1	Materials Dopant Unstower	2305	003.281	Instrumentation Technician		
		22	01	2.C.04-10	2.C.25	Materials Dopant Translocator	2304	000.000	General Technical Skill		
					2.D.13-2						
		27	01	2.C.04-10	1.G.01-18	Materials Dopant Installer	1370	003.181	Electrical Technician		
					1.G.01-2						
1.G.01-6											
5	Determine temperature needed for experiment	11	01	3.I.05-1	2.D.19-3	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
					2.C.25						
					2.D.24-1						
					2.D.32						
		13	01	3.I.05-1	2.D.13-2	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass		
4.D.14											
5.D.											
2.C.25											
8	Program temperature controller for cooling	15	01	2.B.06-10	2.D.24-1	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
					3.I.05-1						
		15	01	2.B.06-2	2.B.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician		
					3.I.05-1						
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-2				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
8	(Continued)	15	01	2.B.06-11	2.D.32	Heating/Positioning Coil Control	1260	003.281	Instrumentation Technician	
		15	01	1.G.02-14	3.I.05-1	Actuator				
		15	01	2.B.06-7	4.D.14	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	
		15	01	2.B.06-6	3.I.05-1	Atmosphere Supply/Control System	1174	003.281	Instrumentation Technician	
11	Setup photographic coverage	18	01	4.D.04-3	2.D.15	Control Actuator				
		22	01	4.D.04-3	2.D.13-2	Environmental Chamber Control	1173	003.281	Instrumentation Technician	
		27	01	4.D.04-3	3.I.05-1	Actuator				
		27	01	4.D.04-3	4.D.20	Camera Unstower	0292	003.281	Instrumentation Technician	
25	Adjust conditions for next experiment run per results of previous experiment run	11	01	3.I.05-1	4.D.02	Camera Translocator	1226	000.000	General Technical Skill	
		13	01	3.I.05-1	1.G.01-18	Camera Installer	0039	003.181	Electrical Technician	
		26	01	2.C.25	1.G.01-2					
		27	01	2.C.25	1.G.01-6					
		26	01	2.D.13-2	1.G.01-7					
		27	01	2.D.13-2	3.I.05-1					
		15	01	2.B.06-1	2.C.25					
		26	01	2.D.13-2	2.D.24-1					
		27	01	2.D.13-2	2.D.32					
		15	01	2.B.06-1	4.D.14					
		26	01	2.D.13-2	2.D.24-1	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass	
		27	01	2.D.13-2	2.D.32					
		15	01	2.B.06-1	4.D.14	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass	
		26	01	2.D.13-2	2.D.24-1					
		27	01	2.D.13-2	2.D.32	Materials Sample Remover	1357	003.181	Electrical Technician	
		26	01	2.D.13-2	4.D.18	Materials Sample Installer	1356	003.181	Electrical Technician	
		27	01	2.D.13-2	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician	
		15	01	2.B.06-1	3.I.05-1	Environmental Chamber Module Installer	1060	003.181	Electrical Technician	
		26	01	2.D.13-2	2.C.25	Computer Control Actuator	0847	003.281	Instrumentation Technician	
		27	01	2.D.13-2	2.C.25					

REVISION NO:

REVISION DATE:

PREPARED BY:

GRH/EMW

APPROVED BY:

GRH

SERIES MS-1-A

PAGE 5-2.3-04-2

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	(Continued)	15	01	1.G.02-14	4.D.14 3.I.05-1 2.C.25 2.D.13-2 2.D.24-1	Heat Rejection System Control	1184	003.281	Instrumentation Technician		
		15	01	2.B.06-2	3.I.05-1 2.C.25 2.B.06-1	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician		
		15	01	2.B.06-7	3.I.05-1 2.D.15 2.C.25	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician		
		26	01	2.D.15	3.I.05-1 2.C.25 4.D.18	Atmosphere Supply and Control System Module Remover	1127	003.181	Electrical Technician		
		27	01	2.D.15	3.I.05-1 2.C.25 4.D.18	Atmosphere Supply and Control System Module Installer	1128	003.181	Electrical Technician		
		15	01	2.B.06-6	2.D.13-2 3.I.05-1 2.C.25	Environmental Chamber Control	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.05-1 2.C.25	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.05-1 2.C.25 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician		
		27	01	4.D.13	3.I.05-1 2.C.25 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-10	2.D.24-1 3.I.05-1 2.C.25	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		26	01	2.D.24-1	3.I.05-1 2.C.25 4.D.18	Furnace Module Remover	0981	003.181	Electrical Technician		
		27	01	2.D.24-1	3.I.05-1 2.C.25 4.D.18	Furnace Module Installer	0982	003.181	Electrical Technician		
		15	01	2.B.06-27	2.D.34 3.I.05-1 2.C.25	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-04-3	

## FLIGHT EXPERIMENT TASK /SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	(Continued)	26	01	2.D.34	3.I.05-1 2.C.25 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician		
		27	01	2.D.34	3.I.05-1 2.C.25 4.D.18	Atmosphere Analysis Unit Module	1209	003.181	Electrical Technician		
		26	01	2.A.43	3.I.05-1 2.C.25 4.D.18	Holographic Device Remover	1237	003.181	Electrical Technician		
		27	01	2.A.43	3.I.05-1 2.C.25 4.D.18	Holographic Device Installer	1238	003.181	Electrical Technician		
		26	01	2.A.43	3.I.05-1 2.C.25 4.D.18	Holographic Device Module Remover	1235	003.181	Electrical Technician		
		27	01	2.A.43	3.I.05-1 2.C.25 4.D.18	Holographic Device Module Installer	1234	003.181	Electrical Technician		
		15	01	2.B.06-17	2.D.52 3.I.05-1 2.C.25 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
		26	01	2.D.52	3.I.05-1 2.C.25 2.B.05-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician		
		27	01	2.D.52	3.I.05-1 2.C.25 2.B.05-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician		
		26	01	2.D.52	3.I.05-1 2.C.25 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician		
		27	01	2.D.52	3.I.05-1 2.C.25 2.B.05-17 4.D.13 4.D.18	VHF Power Unit Module Installer	1096	003.181	Electrical Technician		
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	(Continued)	15	01	2.B.06-11	2.D.32 3.I.05-1 2.C.25 2.D.52 2.D.13-2	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician		
		26	01	2.D.32	3.I.05-1 2.C.25 2.D.52 2.D.13-2 2.B.06-11	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician		
		27	01	2.D.32	3.I.05-1 2.C.25 2.D.52 2.D.13-2 2.B.05-11	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician		
		15	01	2.B.05-28	2.A.44 3.I.05-1 2.C.25 2.D.13-2 2.D.24-1	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician		
		26	01	2.A.44	3.I.05-1 2.C.25 2.D.13-2 2.D.24-1 2.B.06-28	Viewing Device Remover	1218	003.181	Electrical Technician		
		27	01	2.A.44	3.I.05-1 2.C.25 2.D.13-2 2.D.24-1 2.B.06-28	Viewing Device Installer	1217	003.181	Electrical Technician		
		15	01	2.B.06-24	2.D.49 3.I.05-1 2.C.25	Crystal Puller Control Actuator	1415	003.281	Instrumentation Technician		
		26	01	2.D.49	3.I.05-1 2.C.25 2.B.06-24 2.D.13-2	Crystal Puller Remover	1419	003.181	Electrical Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH			SERIES MS-1-A

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
25	(Continued)	27	01	2.D.49	3.I.05-1 2.C.25 2.B.06-24 2.D.13-2	Crystal Puller Installer	1418	003.181	Electrical Technician		
		15	01	2.B.06-18	2.D.56 3.I.05-1 2.C.25 2.A.18	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
		26	01	2.D.56	2.B.06-18 2.A.18 3.I.05-1 2.C.25	Heating/Cooling Device Remover	1250	003.181	Electrical Technician		
		27	01	2.D.56	2.B.06-18 2.A.18 3.I.05-1 2.C.25	Heating/Cooling Device Installer	1251	003.181	Electrical Technician		
31	Set up experiment apparatus	18	01	2.C.25	4.D.20	Materials Samples Unstower	1354	003.281	Instrumentation Technician		
		22	01	2.C.25	1.G.01-18 1.G.01-2 1.G.01-6	Materials Samples Translocator	1355	000.000	General Technical Skill		
		27	01	2.C.25	2.D.24-1 3.I.05-1	Materials Samples Installer	1356	003.181	Electrical Technician		
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician		
		18	01	2.B.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	2.D.15	4.D.02 2.B.06-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		
		18	01	2.D.24-1	4.D.02 2.B.06-10	Furnace Unstower	0980	003.281	Instrumentation Technician		
		18	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Unstower	1203	003.281	Instrumentation Technician		
		22	01	2.D.34	1.G.01-18 1.G.01-2 1.G.01-6	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill		
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	27	01	2.D.34	2.D.13-2 2.D.15 2.B.06-27 3.I.05-1	Atmosphere Analysis Unit Installer	1205	003.181	Electrical Technician		
		18	01	2.A.43	4.D.02 4.D.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician		
		22	01	2.A.43	1.G.01-18 1.G.01-2 1.G.01-6	Holographic Device Translocator	1239	000.000	General Technical Skill		
		27	01	2.A.43	2.B.06-14 2.C.25 3.I.05-1	Holographic Device Installer	1238	003.181	Electrical Technician		
		18	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician		
		22	01	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
		27	01	2.D.52	2.B.06-17 4.D.13 3.I.05-1	VFH Power Unit Installer	1091	003.181	Electrical Technician		
		18	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician		
		18	01	4.D.22-1	4.D.02	General Purpose Lab Bench Unstower	2252	003.281	Instrumentation Technician		
		18	01	4.B.01-1	4.D.02	Accident Control System Unstower	2253	003.281	Instrumentation Technician		
		18	01	2.D.32	1.G.02-13 4.D.32 4.D.20	Heating/Positioning Coil Unstower	1271	003.281	Instrumentation Technician		
		22	01	2.D.32	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Positioning Coil Translocator	1270	000.000	General Technical Skill		
		27	01	2.D.32	2.D.52 2.D.13-2 4.D.22-1 2.B.06-11 3.I.05-1	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician		
		18	01	2.A.44	4.D.02 4.D.20	Viewing Device Unstower	1215	003.281	Instrumentation Technician		
		22	01	2.A.44	1.G.01-18 1.G.01-2 1.G.01-6	Viewing Device Translocator	1216	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGES-2.3-04-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
31	(Continued)	27	01	2.A.44	2.C.25 2.D.13-2 2.D.24-1 2.B.06-28 3.I.05-1	Viewing Device Installer	1217	003.181	Electrical Technician				
		18	01	2.D.49	4.D.02 4.D.20	Crystal Puller Unstower	1416	003.281	Instrumentation Technician				
		22	01	2.D.49	1.G.01-18 1.G.01-2 1.G.01-6	Crystal Puller Translocator	1417	000.000	General Technical Skill				
		27	01	2.D.49	2.C.25 2.D.13-2 2.D.24-1 2.B.06-24 3.I.05-1	Crystal Puller Installer	1418	003.181	Electrical Technician				
		18	01	2.D.56	4.D.20 4.D.02	Heating/Cooling Device Unstower	1253	003.281	Instrumentation Technician				
		22	01	2.D.56	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Cooling Device Translocator	1252	000.000	General Technical Skill				
		27	01	2.D.56	2.B.06-18 2.A.18 3.I.05-1 2.C.25	Heating/Cooling Device Installer	1251	003.181	Electrical Technician				
		35	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046		710.884	Calibrator	
				08	01	2.D.52	4.C.01	VHF Power Unit Calibrator	1097		710.884	Calibrator	
				08	01	2.D.32	4.C.01	Heating/Positioning Coil Calibrator	1333		710.884	Calibrator	
08	01			2.A.43	4.C.01	Holographic Device Calibrator	1227	710.884	Calibrator				
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-2.3-04-2				

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
37	Define apparatus configuration	11	01	3.1.06-1	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.14 2.D.32 2.A.44 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
		13	01	3.1.05-1	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.14 2.D.32 2.A.44 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-04-9	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
38	Define experiment conditions	13	01	3.I.05-1	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.D.24-1 2.D.27 2.D.34 4.D.10 2.A.43 4.D.14 2.D.32 2.A.44 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic		
46	Install data recording system	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	2.B.06-1 2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician		
50	Checkout optical instrumen- tation and measuring devices	03	01	2.D.27	4.D.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems		
		03	01	2.A.43	4.D.09	Holographic Device Inspector	2270	722.281	Inspector, Systems		
		14	01	2.D.27	4.C.02	Materials Analysis Equipment Tester	1447	003.181	Electrical Technician		
		14	01	2.A.43	2.B.06-14	Holographic Device Tester	1449	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE: 5-2, 3-04-10	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
24	Store crystal for return to earth	26	01	2.C.25	2.F.04 2.D.19-3	Materials Sample Remover	1357	003.181	Electrical Technician		
		18	01	2.C.25	1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Translocator	1355	000.000	General Technical Skill		
		17	01	2.C.25	2.D.25 4.D.20 4.D.02	Materials Sample Stower	1371	003.281	Instrumentation Technician		
33	Refurbish experiment apparatus	19	01	2.D.13-2	2.C.25 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.24-1	2.C.25 4.D.06	Furnace Cleaner	0984	003.281	Instrumentation Technician		
		19	01	2.D.32	2.C.25 4.D.06	Heating/Positioning Coil Cleaner	1336	003.281	Instrumentation Technician		
		19	01	2.D.27	2.C.25 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician		
		19	01	2.D.49	2.C.25 4.D.06	Crystal Puller Cleaner	1422	003.281	Instrumentation Technician		
		19	01	2.D.56	2.C.25 4.D.06	Heating/Cooling Device Cleaner	2306	003.281	Instrumentation Technician		
41	Communicate experiment results to earth	05	01	4.A.02	3.I.05-4 2.C.25	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.05-4	4.A.02 2.C.25	Crystal Growth Research Coordinator	2298	022.081	Chemist, Inorganic		
44	Develop film; make prints	06	01	4.B.08	2.A.27-6	Film Processor	0328	976.782	Film Processor	MS-3 MS-3	
		06	01	4.D.19	2.A.27-6	Film Processor	0328	976.782	Film Processor		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE'S-2.3-05-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth with Solutions (See Note MS-6)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Activate the experiment equipment	15	01	2.B.06-11	2.D.32 3.I.05-1 2.C.25	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.D.13-2 3.I.05-1	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-5	4.D.22-1 3.I.05-1	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician		
		15	01	2.B.06-7	2.D.15 3.I.05-1 2.C.25	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician		
		15	01	2.B.06-9	2.D.34 4.D.13 3.I.05-1	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		15	01	2.B.06-10	2.D.52 2.D.24-1 3.I.05-1	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		15	01	2.B.06-14	2.C.25 2.A.43 3.I.06-1	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
		15	01	2.B.06-17	2.C.26 2.D.52 3.I.06-1	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
		15	01	2.B.06-2	4.D.13 2.B.06-1 3.I.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician		
		15	01	1.G.02-14	2.C.26 4.D.14 3.I.06-1	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	1.G.02-13	2.D.24-1 4.E.04-1 3.I.06-1	Accident Control System Control Actuator	2261	003.281	Instrumentation Technician		
		15	01	2.B.06-27	2.C.26 2.D.34 3.I.06-1	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
					2.C.26 2.D.15						
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-05-1	



# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	(Continued)	15	01	2.B.06-28	2.A.44 3.I.05-1 2.C.25 4.D.04-3	Viewing Device Control Actuator	2262	003.281	Instrumentation Technician		
		15	01	2.B.06-24	2.D.49 3.I.05-1 2.C.25	Crystal Puller Control Actuator	1415	003.281	Instrumentation Technician		
		15	01	2.B.06-18	2.D.56 3.I.05-1 2.C.25 2.A.18	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
7	Monitor heating process	01	01	2.B.06-10	2.D.24-1 2.C.25 3.I.05-4 5.D.	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
		01	01	2.B.06-11	2.D.32 2.C.25 3.I.05-4 5.D.	Heating/Positioning Coils Operation Monitor	1259	003.281	Instrumentation Technician		
		01	01	2.B.06-18	2.D.56 2.C.25 3.I.05-4 5.D.	Heating/Cooling Device Operation	1241	003.281	Instrumentation Technician		
9	Add seed to melt before cooling	18	01	2.C.04-10	2.D.25 4.D.20	Materials Dopant Unstower	2305	003.281	Instrumentation Technician		
		22	01	2.C.04-10	1.G.01-18 1.G.01-2 1.G.01-6	Materials Dopant Translocator	2304	000.000	General Technical Skill		
		27	01	2.C.04-10	2.D.19-3 2.C.25 3.I.05-1 2.D.58 2.D.13-2	Materials Dopant Installer	1370	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-06-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
10	Initiate cooling process	16	01	2.B.06-10	2.D.24-1 3.I.05-1	Furnace Control Deactuator	1400	003.281	Instrumentation Technician		
		16	01	2.B.06-11	2.C.25 2.D.32 3.I.05-1	Heating/Positioning Coils Control	1505	003.281	Instrumentation Technician		
		16	01	2.B.06-18	2.C.25 2.D.56 3.I.05-1	Heating/Cooling Device Control Deactuator	2307	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.C.25 2.A.18 2.D.13-2 3.I.05-1	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-18	2.C.25 2.D.56 3.I.05-1 2.C.25 2.A.18	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
12	Activate photographic coverage	15	01	4.D.04-3	3.I.05-1 2.C.25	Camera Control Actuator	0245	003.281	Instrumentation Technician		
13	Monitor cooling process	01	01	2.B.06-6	2.D.13-2 3.I.05-1 2.C.25	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		01	01	2.B.06-18	2.D.56 3.I.05-1 2.C.25 2.A.18	Heating/Cooling Device Operation Monitor	1241	003.281	Instrumentation Technician		
14	Observe cooling process and crystal formation	02	01	3.I.05-1	2.C.25 2.D.13-2 2.D.56 2.A.18	Crystal Growth Observer	1368	022.081	Chemist, Inorganic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-06-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
15	Determine crystal growth completion (time)	02	01	3.I.05-1	2.C.25 2.A.18 2.E.10	Crystal Growth Observer	1368	022.081	Chemist, Inorganic - Glass		
		11	01	3.I.05-1	2.C.25 2.E.10	Crystal Growth Process Evaluator	1369	022.081	Chemist, Inorganic - Glass		
		13	01	3.I.05-1	2.C.25 2.E.10	Crystal Growth Characteristics Determiner	1444	022.081	Chemist, Inorganic - Glass		
16	Acquire real-time temperature measurements	02	01	3.I.05-1	2.D.13-2 2.C.25 2.B.06-6 2.D.56 2.B.06-18 6.A.01-4	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass		
		06	01	3.I.05-1	5.D. 2.C.25 2.D.56 2.D.13-2 6.A.01-4	Crystal Growth Data Recorder	1454	022.081	Chemist, Inorganic - Glass		
17	Obtain hourly temperature measurements	02	01	3.I.05-1	2.D.13-2 2.C.25 2.B.06-6 2.D.56 2.B.06-18 5.D. 6.A.01-4	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass		
		06	01	3.I.05-1	2.D.13-2 2.C.25 2.D.56 5.D. 6.A.01-4	Crystal Growth Data Recorder	1454	022.081	Chemist, Inorganic - Glass		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A			PAGE MS-2.3-06-4

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
18	Remove crucible/sample holder from furnace	26	01	2.D.19-3	2.D.24-1 2.C.25 2.D.13-2	Sample Holder Remover	2308	003.181	Electrical Technician		
19	Dissolve glassy matrix around crystal	27	01	2.C.04-5	2.C.25 2.D.19-4 3.I.05-1	Silicate Solvent Applier	1398	022.081	Chemist, Inorganic - Glass		
		02	01	3.I.05-1	2.C.25 2.C.04-5	Crystal Growth Process Observer	2299	022.081	Chemist, Inorganic - Glass		
20	Conduct physical evaluation of crystal	11	01	3.I.05-1	2.C.25 2.D.27-4 2.D.27-6	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
21	Conduct electrical evaluation of crystal	11	01	3.I.05-1	2.C.25 2.D.27	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
22	Conduct optical evaluation of crystal	11	01	3.I.05-1	2.C.25 2.D.27-1	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
23	Conduct x-ray evaluation of crystal	11	01	3.I.05-1	2.C.25 2.D.27-4	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
36	Schedule experiment runs	13	01	3.I.05-1	2.C.25 2.B.06-1 2.B.06-2 6.A.02	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass		
39	Monitor experiment performance	01	01	3.I.05-1	2.C.25 2.B.06-2 2.B.09 2.A.44	Crystal Growth Research Monitor	2303	003.281	Instrumentation Technician		
		01	01	2.B.06-6	2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-2.3-06-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 06 - Experiment Conduct					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.		
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
39	(Continued)	01	01	2.B.06-7	2.D.15 2.B.06-27 2.D.34	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician				
		01	01	2.B.06-9	4.D.13 2.B.06-17 2.D.52	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician				
		01	01	2.B.06-10	2.D.24-1 2.D.13-2	Furnace Operation Monitor	0985	003.281	Instrumentation Technician				
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician				
		01	01	2.B.06-2	2.B.06-1	Computer Operation Monitor	1055	003.281	Instrumentation Technician				
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician				
		01	01	2.B.06-27	2.D.34 2.D.15 2.B.06-7	Atmosphere Analysis Unit Operation Monitor	1343	003.281	Instrumentation Technician				
		01	01	2.B.06-11	2.D.32	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician				
		01	01	1.G.02-14	4.D.14 2.D.24-1 2.B.06-10	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician				
		01	01	2.B.06-24	2.D.49 2.D.13-2 2.D.52	Crystal Puller Operation Monitor	1423	003.281	Instrumentation Technician				
		01	01	2.B.06-14	2.A.43	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician				
		01	01	2.B.06-18	2.D.56	Heating/Cooling Device Operation Monitor	1241	003.281	Instrumentation Technician				
		40	Evaluate experiment results	11	01	3.I.05-1	2.C.25 2.D.27	Crystal Growth Research Evaluator	1394	022.081		Chemist, Inorganic - Glass	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE 5-2.3-06-8			

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 10 Unscheduled Maintenance (See Note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVTR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-2	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
		28	01	2.D.13-2	4.C.02	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		07	01	2.B.06-5	4.D.22-1	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic		
		28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.B.06-7	2.D.15	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic		
		28	01	2.D.15	4.C.02	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic		
		07	01	2.B.06-9	4.D.13	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-10	2.D.24-1	Furnace Fault Identifier	0989	828.281	Electronics Mechanic		
		28	01	2.D.24-1	4.C.02	Furnace Repairer	0988	828.281	Electronics Mechanic		
		07	01	4.D.04-3	4.C.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
		28	01	4.D.04-3	4.C.07	Camera Repairer	1195	828.281	Electronics Mechanic		
		07	01	2.B.06-14	4.D.18	Holographic Device Fault Identifier	1233	828.281	Electronics Mechanic		
		28	01	2.A.43	4.C.02	Holographic Device Repairer	1232	828.281	Electronics Mechanic		
		07	01	2.B.06-17	4.C.01	VHF Power Unit Fault Identifier	1103	828.281	Electronics Mechanic		
		28	01	2.D.52	4.C.07	VFH Power Unit Repairer	1102	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.D.18	Computer Fault Identifier	0523	828.281	Electronics Mechanic		
		28	01	2.B.06-1	2.B.06-1	Computer Repairer	0540	828.281	Electronics Mechanic		
		07	01	1.G.02-14	4.D.14	Heat Rejection Systems Fault Identifier	1150	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/E:W		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-2.3-10-1		

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 2.0 Levitation Experiments 2.3 Crystal Growth from Solutions (See Note MS-6)				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	(Continued)	28	01	4.D.14	4.D.18	Heat Rejection System Repairer	1149	828.281	Electronics Mechanic		
		07	01	1.G.02-13	4.E.04-1	Accident Control System Fault Identifier	2267	828.281	Electronics Mechanic		
		28	01	4.E.04-1	4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic		
		07	01	2.B.06-27	2.D.34	Atmosphere Analysis Unit Fault Identifier	1210	828.281	Electronics Mechanic		
					4.C.02						
					2.B.06-7						
		28	01	2.D.34	4.D.18	Atmosphere Analysis Unit Repairer	1211	828.281	Electronics Mechanic		
		07	01	2.B.06-11	2.D.32	Heating/Positioning Coil Fault Identifier	1264	828.281	Electronics Mechanic		
					4.C.02						
		28	01	2.D.32	4.D.18	Heating/Positioning Coil Repairer	1263	828.281	Electronics Mechanic		
		07	01	2.B.06-28	2.A.44	Viewing Device Fault Identifier	1222	828.281	Electronics Mechanic		
					4.C.02						
					4.C.07						
		28	01	2.A.44	4.D.18	Viewing Device Repairer	1223	828.281	Electronics Mechanic		
					2.D.24-1						
		07	01	2.B.06-24	2.D.49	Crystal Puller Fault Identifier	1442	828.281	Electronics Mechanic		
					4.C.02						
		28	01	2.D.49	4.D.18	Crystal Puller Repairer	1443	828.281	Electronics Mechanic		
07	01	2.B.06-18	2.D.56	Heating/Cooling Device Fault Identifier	1246	828.281	Electronics Mechanic				
			4.C.02								
28	01	2.D.56	4.D.18	Heating/Cooling Device Repairer	1245	828.281	Electronics Mechanic				
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-2.3-10-2	

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-3**

**EXPERIMENT: 3.0 FURNACE EXPERIMENTS  
3.1 COMPOSITE MATERIALS**



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCE AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1.	Define experiment apparatus configurations	11	01	3.I.04-1 3.I.04-2 3.I.04-3 3.I.04-4 3.I.04-5 3.I.04-6	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.D.13-1 2.D.13-2 2.B.06-2 4.D.13 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18 2.D.19 2.D.20	Composite Materials Research Evaluator	0973	011.281	Metallurgist Assistant		
		13	01	3.I.04-1 3.I.04-2 3.I.04-3 3.I.04-4 3.I.04-5 3.I.04-6	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.D.13-1 2.D.13-2 2.B.06-2 4.D.13 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18 2.D.19 2.D.20	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIESMS-1-A		PAGE'S-3.1-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
7.	Program experiment control equipment	13	01	3.I.04-1	2.B.06-1 2.C.14	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
		13	01	3.I.04-2	2.B.06-1 2.C.14	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
		13	01	3.I.04-3	2.B.06-1 2.C.14	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
		13	01	3.I.04-4	2.B.06-1 2.C.14	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
		13	01	3.I.04-5	2.B.06-1 2.C.14	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
		13	01	3.I.04-6	2.B.06-1 2.C.14	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
		15	01	2.B.06-2	2.B.06-1 3.I.04-1 3.I.04-2 3.I.04-3 3.I.04-4 3.I.04-5 3.I.04-6 2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	Computer Control Actuator	0847	003.281	Instrumentation Technician		
17.	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.04 2.C.14 2.D.13-1 2.D.13-2 2.D.24-1 2.D.18	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.04	4.A.02 2.C.14 2.D.13-1 2.D.13-2 2.D.24-1 2.D.18	Composite Materials Research Coordinator	2309	011.281	Metallurgist Assistant		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIESMS-1-A			PAGE MS-3.1-04-2

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCE AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31.	Setup experiment apparatus	18	01	2.C.14-1	4.D.20	Composite Materials Sample Unstower	0975	003.281	Instrumentation Technician		
		18	01	2.C.14-2	4.D.20	Composite Materials Sample Unstower	0975	003.281	Instrumentation Technician		
		18	01	2.C.14-3	4.D.20	Composite Materials Sample Unstower	0975	003.281	Instrumentation Technician		
		18	01	2.C.14-4	4.D.20	Composite Materials Sample Unstower	0975	003.281	Instrumentation Technician		
		18	01	2.C.14-5	4.D.20	Composite Materials Sample Unstower	0975	003.281	Instrumentation Technician		
		22	01	2.C.14	1.G.01-18 1.G.01-6 1.G.01-2	Composite Materials Sample Translocator	0976	000.000	General Technical Skill		
		27	01	2.C.14	3.I.04 2.D.24-1 2.D.21 2.D.47 2.D.18	Composite Materials Sample Installer	0974	003.181	Electrical Technician		
		18	01	2.D.13-1	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician		
		18	01	2.B.06-2	4.D.02	Instrumentation & Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	2.D.15	4.D.02 2.B.06-7	Atmosphere Supply & Control System Unstower	1162	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		
		18	01	2.D.24-1 2.B.06-10	4.D.02	Furnace Unstower	0980	003.281	Instrumentation Technician		
		18	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Unstower	1203	003.281	Instrumentation Technician		
		22	01	2.D.34	1.G.01-18 1.G.01-2 1.G.01-6	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.1-04-3		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31.	(Continued)	27	01	2.D.34	2.D.13-1 2.D.13-2 2.D.15 2.B.06-27	Atmosphere Analysis Unit Installer	1205	003.181	Electrical Technician		
		18	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician		
		22	01	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
		27	01	2.D.52	2.B.06-17 4.D.13 3.I.04	VHF Power Unit Installer	1091	003.181	Electrical Technician		
		18	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician		
		18	01	4.D.22-1	4.D.02	General Purpose Hot Bench Unstower	2252	003.281	Instrumentation Technician		
		18	01	4.B.01-1	4.D.02 1.G.02-13	Accident Control System Unstower	2253	003.281	Instrumentation Technician		
		18	01	2.D.21-1	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician		
		18	01	2.D.21-2	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician		
		22	01	2.D.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill		
		27	01	2.D.21-1	2.B.06-13 2.D.52 3.I.04 2.C.14	Mixing Unit Installer	0991	003.181	Electrical Technician		
		27	01	2.D.21-2	2.B.06-13 2.D.52 3.I.04 2.C.14	Mixing Unit Installer	0991	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.1-04-4		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space :				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment Setup					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
31.	(Continued)	22	01	2.D.22	1.G.01-18 1.G.01-06 1.G.01-02	Vibrator Translocator	1081	000.000	General Technical Skill				
		27	01	2.D.22	2.B.06-16 2.D.22 3.I.04 4.D.22-1	Vibrator Installer	1079	003.181	Electrical Technician				
		18	01	2.D.18	4.D.20 4.D.02	Dispersion Control System Unstower	1105	003.281	Instrumentation Technician				
		22	01	2.D.18	1.G.01-18 1.G.01-16 1.G.01-02	Dispersion Control System Translocator	2310	000.000	General Technical Skill				
		27	01	2.D.18	2.B.06-12 2.D.19 2.D.24-1 3.I.04 2.C.14 2.D.52	Dispersion Control System Installer	2311	003.181	Electrical Technician				
		18	01	2.D.19	4.D.20 4.D.02	Materials Forming Equipment Unstower	1017	003.281	Instrumentation Technician				
		22	01	2.D.19	1.G.01-18 1.G.01-06 1.G.01-02	Materials Forming Equipment Translocator	1018	000.000	General Technical Skill				
		27	01	2.D.19	2.D.24-1 3.I.04 2.C.14 2.D.18	Materials Forming Equipment Installer	1016	003.181	Electrical Technician				
		32.	Reconfigure experiments.	26	01	2.C.14	2.D.24-1	Composite Materials Sample Remover	0977		003.181	Electrical Technician	
				27	01	2.C.14	2.D.24-1	Composite Sample Installer	0974		003.181	Electrical Technician	
26	01			2.D.13-1	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician				
27	01			2.D.13-1	4.D.18 3.I.04	Environmental Chamber Module Installer	1060	003.181	Electrical Technician				
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.1-04-5				

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32.	(Continued)	15	01	2.B.06-1	3.I.04 2.C.14	Computer Control Actuator	0847	003.281	Electrical Technician		
		15	01	2.B.06-2	3.I.04 2.C.14 2.B.06-1	Instrumentation & Control Center Control Actuator	2255	003.281	Instrumentation Technician		
		15	01	2.B.06-7	3.I.04 2.D.15 2.C.14	Atmosphere Supply & Control System Control Actuator	1174	003.281	Instrumentation Technician		
		26	01	2.D.15	3.I.04 2.C.14 4.D.18	Atmosphere Supply & Control System Module Remover	1127	003.181	Electrical Technician		
		27	01	2.D.15	3.I.04 2.C.14 4.D.18	Atmosphere Supply & Control System Module Installer	1128	003.181	Electrical Technician		
		15	01	2.B.06-6	2.D.13-1 2.D.13-2 3.I.04 2.C.14	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.04 2.C.14	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.04 2.C.14 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician		
		27	01	4.D.13	3.I.04 2.C.14 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-10	2.D.24-1 3.I.04 2.C.14	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		26	01	2.D.24-1	3.I.04 2.C.14 4.D.18	Furnace Module Remover	0981	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.1-04-6		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32.	(Continued)	27	01	2.D.24-1	3.I.04 2.C.14 4.D.18	Furnace Module Installer	0982	003.181	Electrical Technician		
		15	01	2.B.06-27	2.D.34 3.I.04 2.C.14	Atmosphere Analysis Unit Control Actuator	1214	003.281	Instrumentation Technician		
		26	01	2.D.34	3.I.04 2.C.14 4.D.18	Atmosphere Analysis Unit Module Remover	1208	003.181	Electrical Technician		
		27	01	2.D.34	3.I.04 2.C.14 4.D.18	Atmosphere Analysis Unit Module Installer	1209	003.181	Electrical Technician		
		26	01	2.D.22	2.C.14 4.D.18	Vibrator Remover	1082	003.181	Electrical Technician		
		27	01	2.D.22	2.C.14 2.C.14 4.D.18	Vibrator Installer	1079	003.181	Electrical Technician		
		26	01	2.D.18	3.I.04 2.C.14 4.D.18	Dispersion Control System Remover	2312	003.181	Electrical Technician		
		27	01	2.D.18	3.I.04 2.C.14 4.D.18	Dispersion Control System Installer	2311	003.181	Electrical Technician		
		15	01	2.B.06-17	2.D.52 3.I.04 2.C.14 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
		26	01	2.D.52	3.I.04 2.C.14 2.B.06-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.1-04-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32.	(Continued)	26	01	2.D.52	3.I.04 2.C.14 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician		
		27	01	2.D.52	3.I.04 2.C.14 2.B.06-17 4.D.13 4.D.18	VHF Power Line & Module Installer	1096	003.181	Electrical Technician		
		15	01	1.G.02-14	4.D.14 3.I.04 2.C.14 2.D.13-1 2.D.13-2 2.D.24-1	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	2.B.06-13	2.D.21-1 2.D.21-2 3.I.04 2.C.14	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician		
		27	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Remover	0994	003.181	Electrical Technician		
		27	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Remover	0994	003.181	Electrical Technician		
		26	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Installer	0991	003.181	Electrical Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCE AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing In Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 04 - Experiment			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32.	(Continued)	26	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.14	Mixing Unit Control Installer	0991	003.181	Electrical Technician		
35.	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator		
		08	01	2.D.52	4.C.01	VHF Power Unit Calibrator	1097	710.884	Calibrator		
		08	01	2.D.18	4.C.01	Dispersion Control System Calibrator	2313	710.884	Calibrator		
46.	Install data recording system	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	2.B.06-1 2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician		
50.	Checkout optical instrumentation and measuring devices	03	01	2.D.27	4.D.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.1-04-9	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
9	Remove samples from apparatus	26	01	2.C.14-1	2.D.24-1 2.D.13-1 2.D.13-2 2.D.19	Composite Materials Sample Remover	0977	003.181	Electrical Technician		
		26	01	2.C.14-2	2.D.2401 2.D.13-1 2.D.13-2 2.D.19	Composite Materials Sample Remover	0977	003.181	Electrical Technician		
		26	01	2.C.14-3	2.D.24-1 2.D.13-1 2.D.13-2 2.D.19	Composite Materials Sample Remover	0977	003.181	Electrical Technician		
		26	01	2.C.14-4	2.D.24-1 2.D.13-1 2.D.13-2 2.D.19	Composite Materials Sample Remover	0977	003.181	Electrical Technician		
		26	01	2.C.14-5	2.D.24-1 2.D.13-1 2.D.13-2 2.D.19	Composite Materials Sample Remover	0977	003.181	Electrical Technician		
10	Clean experiment apparatus	19	01	2.D.13-1	2.C.14 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.13-2	2.C.14 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.24-1	2.C.14 4.D.06	Furnace Cleaner	0984	003.281	Instrumentation Technician		
		19	01	2.D.27	2.C.14 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician		
		19	01	2.D.21-1	2.C.14 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician		
		19	01	2.D.21-2	2.C.14 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician		
		19	01	2.D.18	2.C.14 4.D.06	Dispersion Control System Cleaner	1109	003.281	Instrumentation Technician		
		19	01	2.D.19	2.C.14 4.D.06	Materials Forming Equipment Cleaner	1021	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-3.1-05-1		

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 05 - Experiment Shutdown					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
11	Secure experiment apparatus	26	01	2.C.14	2.D.24-1	Composite Materials Sample Remover	0977	003.181	Electrical Technician				
		22	01	2.C.14	1.G.01-18 1.G.01-6 1.G.01-2	Composite Materials Sample Translocator	0976	000.000	General Technical Skill				
		17	01	2.C.14	4.D.20	Composite Materials Sample Stower	0978	003.281	Instrumentation Technician		Instrumentation Technician		
		17	01	2.D.13-1	2.B.06-6 4.D.02	Environmental Chamber Stower	1061	003.281					
		17	01	2.D.13-2	2.B.06-6 4.D.02	Environmental Chamber Stower	1061	003.281	Instrumentation Technician				
		17	01	2.B.06-1	2.B.06-2 4.D.02	Computer Stower	1160	003.281	Instrumentation Technician				
		17	01	2.B.06-2	4.D.02	Instrumentation and Control Center Stower	2246	003.281	Instrumentation Technician				
		17	01	2.D.15	2.B.06-7 4.D.02	Atmosphere Supply and Control System Stower	1169	003.281	Instrumentation Technician				
		17	01	4.D.13	2.B.06-9 4.D.02	Power Conditioning/Distribution System Stower	1170	003.281	Instrumentation Technician				
		17	01	2.D.24-1	2.B.06-10 4.D.02	Furnace Stower	0983	003.281	Instrumentation Technician				
		26	01	2.D.34	2.B.06-27 2.D.13-1 2.D.13-2 2.D.15	Atmosphere Analysis Unit Remover	1206	003.181	Electrical Technician				
		22	01	2.D.34	1.G.01-18 1.G.01-6 1.G.01-2	Atmosphere Analysis Unit Translocator	1204	000.000	General Technical Skill				
		17	01	2.D.34	4.D.02 4.D.20	Atmosphere Analysis Unit Stower	1207	003.281	Instrumentation Technician				
		26	01	2.D.52	2.B.06-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician				
		22	01	2.D.52	1.G.01-18 1.G.01-6 1.G.01-2	VHF Power Unit Translocator	1093	000.000	General Technical Skill				
		17	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Stower	1098	003.281	Instrumentation Technician				
		17	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Stower	1145	003.281	Instrumentation Technician				
		17	01	4.D.22-1	4.D.02	General Purpose Lab Bench Stower	2256	003.281	Instrumentation Technician				
		17	01	4.B.01-1	4.D.02 1.G.02-13	Accident Control System Stower	2258	003.281	Instrumentation Technician				
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EKW		APPROVED BY: GRH			SERIES MS-1-A		PAGEMS-3.1-05-2

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
11	(Continued)	26	01	2.D.21-1	2.D.52	Mixing Unit Remover	0994	003.181	Electrical Technician		
					2.B.06-13						
		26	01	2.D.21-2	2.D.52	Mixing Unit Remover	0994	003.181	Electrical Technician		
					2.B.06-13						
		22	01	2.D.21	1.G.01-18	Mixing Unit Translocator	0993	000.000	General Technical Skill		
					1.G.01-6						
					1.G.01-2						
		17	01	2.D.21	4.D.02	Mixing Unit Stower	0997	003.281	Instrumentation Technician		
					4.D.20						
		26	01	2.D.22	2.D.52	Vibrator Remover	1082	003.181	Electrical Technician		
					2.B.06-16						
		22	01	2.D.22	1.G.01-18	Vibrator Translocator	1081	000.000	General Technical Skill		
			1.G.01-6								
			1.G.01-2								
			4.C.02								
			4.C.20								
26	01	2.D.18	2.B.06-12	Dispersion Control System Remover	2312	003.181	Electrical Technician				
			2.D.24-1								
			2.D.19								
22	01	2.D.18	1.G.01-18	Dispersion Control System Translocator	2310	000.000	General Technical Skill				
			1.G.01-6								
			1.G.01-2								
17	01	2.D.18	4.C.02	Dispersion Control System Stower	1107	003.281	Instrumentation Technician				
			4.C.20								
15	Prepare experiment notes	06	01	3.I.04	2.C.14	Composite Materials Data Recorder	0969	000.000	General Technical Skill		
					2.F.02						
					2.F.02-1						
17	Conduct voice conferences with ground personnel	05	01	4.A.02	3.I.04	Radio Communicator	0206	003.187	Radio Engineer		
					2.C.14						
					2.D.13-1						
					2.D.13-2						
					2.E.24-1						
					2.D.18						
					4.A.02						
					2.C.14						
					2.D.13-1						
					2.D.13-2						
2.D.24-1											
2.D.18	Composite Materials Research Coordinator	2309	011.281	Metallurgist Assistant							
4.A.02											
2.C.14											
2.D.13-1											
2.D.13-2											
2.D.24-1											
2.D.18											
2.D.13-1											
2.D.13-2											
2.D.24-1											
2.D.18											
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.1-05-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
12	Perform metallographic examinations	12	01	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	2.D.27 3.I.04-1 3.I.04-2 3.I.04-3 3.I.04-4 3.I.04-5 3.I.04-6 2.A.18	Composite Materials Structure Analyzer	0971	011.281	Metallurgist Assistant	
13	Perform sample evaluation tests	11	01	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5	2.D.27 3.I.04-1 3.I.04-2 3.I.04-3 3.I.04-4 3.I.04-5 3.I.04-6	Composite Materials Sample Evaluator	2314	011.281	Metallurgist Assistant	
14	Determine need for repetition and changes	11	01	3.I.04	2.C.14 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22 2.D.18	Composite Materials Research Evaluator	0973	011.281	Metallurgist Assistant	
		13	01	3.I.04	2.C.14 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22 2.D.18	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant	
15	Prepare experiment notes	06	01	3.I.04	2.C.14 2.F.02 2.F.02-1	Composite Materials Data Recorder	0969	000.000	General Technical Skill	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-3.1-06-1

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL ...		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
20	Prepare metallographic sections of samples	27	01	2.C.14	2.D.27-1 2.D.27-2 2.D.27-3 3.I.04	Composite Materials Sample Installer	0974	003.181	Electrical Technician		
		10	01	2.D.27-1	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 3.I.04	Materials Analysis Equipment Controller	1049	011.281	Metallurgist Assistant		
		10	01	2.D.27-2	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 3.I.04	Materials Analysis Equipment Controller	1049	011.281	Metallurgist Assistant		
		10	01	2.D.27-3	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 3.I.04	Materials Analysis Equipment Controller	1049	011.281	Metallurgist Assistant		
36	Schedule experiment runs	13	01	3.I.04	2.B.06-1 2.B.06-2 2.C.14 6.A.02	Composite Materials Research Planner	0968	011.281	Metallurgist Assistant		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGES-3.1-05-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
38	Define experiment conditions	13	01	3.I.04	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.D.13-1 2.D.13-2 4.D.13 2.D.24-1 2.D.21-1 2.D.21-2 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18 2.D.19 2.D.20	Composite Materials Research Planner	0968	011.281	Metallurgical Assistant		
39	Monitor experiment performance	01	01	3.I.04	2.C.14 2.B.06-2	Composite Materials Research Monitor	2315	003.281	Instrumentation Technician		
		01	01	2.B.06-6	2.D.13-1 2.D.13-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		01	01	2.B.06-7	2.D.15 2.B.06-27	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
		01	01	2.B.06-9	2.D.34 4.D.13 2.B.06-17	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician		
		01	01	2.B.06-10	2.D.52 2.D.24-1 2.D.13-1 2.D.13-2	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-2	2.B.06-1	Computer Operation Monitor	1055	003.281	Instrumentation Technician		
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.1-06-3		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
39	(Continued)	01	01	2.B.06-27	2.D.34 2.D.15 2.B.06-7	Atmosphere Analysis Unit Operation Monitor	1343	003.281	Instrumentation Technician		
		01	01	2.B.06-13	2.D.21-1 2.D.21-2	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician		
		01	01	2.B.06-16	2.D.22	Vibrator Operation Monitor	1086	003.281	Instrumentation Technician		
		01	01	1.G.02-14	4.D.14	Heat Rejection System Operation	1146	003.281	Instrumentation Technician		
		01	01	2.B.06-12	2.D.24-1 2.D.18	Dispersion Control System Operation Monitor	1110	003.281	Instrumentation Technician		
40	Evaluate experiment results	11	01	3.I.04	2.C.14-1 2.C.14-2 2.C.14-3 2.C.14-4 2.C.14-5 2.D.27 2.F.02	Composite Materials Research Evaluator	0973	011.281	Metallurgist Assistant		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-3.2-06-4	



# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
		28	01	2.D.13-1	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		28	01	2.D.13-2	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		07	01	2.B.06-5	4.D.22-1 4.C.02	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic		
		28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.B.06-7	2.D.15 4.C.02 2.B.06-27	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic		
		28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic		
		07	01	2.B.06-9	4.D.13 4.C.02 2.B.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic		
		28	01	2.D.24-1	4.D.18	Furnace Repairer	0988	828.281	Electronics Mechanic		
		07	01	2.B.06-13	2.D.21-1 2.D.21-2 4.C.02	Mixing Unit Fault Identifier	1003	828.281	Electronics Mechanic		
		28	01	2.D.21-1	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		28	01	2.D.21-2	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		07	01	2.B.06-16	2.D.22 4.C.02	Vibrator Fault Identifier	1090	828.281	Electronics Mechanic		
		28	01	2.D.22	4.D.18	Vibrator Repairer	1089	828.281	Electronics Mechanic		
		07	01	2.B.06-17	2.D.52 4.C.02 2.B.06-9	VHF Power Unit Fault Identifier	1103	828.281	Electronics Mechanic		
		28	01	2.D.52	4.D.18	VHF Power Unit Repairer	1102	828.281	Electronics Mechanic		
		07	01	2.B.06-2	2.B.06-1 4.C.02	Computer Fault Identifier	0523	828.281	Electronics Mechanic		
		28	01	2.B.06-1	4.D.18	Computer Repairer	0540	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.1-10-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences & Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.1 Composite Materials				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	(Continued)	07	01	1.G.02-14	4.D.14	Heat Rejection System Fault	1150	828.281	Electronics Mechanic		
		28	01	4.D.14	4.C.02	Identifier	1149	828.281	Electronics Mechanic		
		07	01	1.G.02-13	4.D.18	Heat Rejection System Repairer	2267	828.281	Electronics Mechanic		
					4.E.04-1	Accident Control System Fault					
					4.C.02	Identifier					
		28	01	4.E.04-1	4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic		
		07	01	2.B.06-27	2.D.34	Atmosphere Analysis Unit Fault	1210	828.281	Electronics Mechanic		
					4.C.02	Identifier					
					2.B.06-7						
		28	01	2.D.34	4.D.18	Atmosphere Analysis Unit Repairer	1211	828.281	Electronics Mechanic		
		07	01	2.B.06-12	2.D.18	Dispersion Control System Fault	1114	828.281	Electronics Mechanic		
					4.C.02	Identifier					
		28	01	2.D.18	4.D.18	Dispersion Control System Repairer	1113	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.1-10-2	

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-3**

**EXPERIMENT: 3.0 FURNACE EXPERIMENTS  
3.2 DIRECTIONAL SOLIDIFICATION**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
1	Formulate selected materials slip (slurry)	13	01	3.I.04-9	2.C.23	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant		
		18	01	2.C.23	2.D.50 4.D.20	Metal Samples Unstower	1257	003.281	Instrumentation Technician		
		22	01	2.C.23	2.D.25 1.G.01-18 1.G.01-6	Metal Samples Translocator	1256	000.000	General Technical Skill		
		27	01	2.C.23	1.G.01-2 2.D.19 2.D.21-1	Metal Samples Installer	1254	003.181	Electrical Technician		
		10	01	2.C.23	2.D.21-2 3.I.04-9 2.D.19 2.D.19 3.I.04-9	Slip Formulation Controller	1347	011.281	Metallurgist Assistant		
2	Store slip in nonporous container	17	01	2.C.23	2.D.25	Slip Materials Stower	1348	003.281	Instrumentation Technician		
3	Select mold of suitable complexity	13	01	2.D.19-1	2.C.23 3.I.04-9	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant		
31	Set up experiment apparatus	18	01	2.D.13-1	4.D.02 2.8.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.D.13-2	4.D.02 2.8.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician		
		18	01	2.B.06-1	4.D.02 2.8.06-2	Computer Unstower	1054	003.281	Instrumentation Technician		
		18	01	2.8.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician		
		18	01	4.D.13	4.D.02 2.8.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician		
		18	01	2.D.24-1	4.D.02 2.8.06-10	Furnace Unstower	0980	003.281	Instrumentation Technician		
		18	01	2.D.52	4.D.02 4.D.20	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician		
		22	01	2.D.52	1.G.01-18 1.G.01-2 1.G.01-6	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-3.2-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	27	01	2.D.52	2.B.06-17 4.D.13 3.I.04	VHF Power Unit Installer	1091	003.181	Electrical Technician		
		18	01	4.D.14	1.G.02-14 4.D.02	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician		
		18	01	4.D.22-1	4.D.02	General Purpose Lab Bench Unstower	2252	003.281	Instrumentation Technician		
		18	01	4.B.01-1	4.D.02	Accident Control System Unstower	2253	003.281	Instrumentation Technician		
		18	01	2.D.21-1	1.G.02-13 4.D.02	Mixing Unit Unstower	0992	003.281	Instrumentation Technician		
		18	01	2.D.21-2	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician		
		18	01	2.D.21-3	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician		
		22	01	2.D.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill		
		27	01	2.D.21-1	2.B.06-13 2.D.52 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
		27	01	2.D.21-2	2.B.06-13 2.D.52 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
		27	01	2.D.21-3	2.B.06-13 2.D.52 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
		18	01	2.D.22	4.D.02 4.D.20	Vibrator Unstower	1080	003.281	Instrumentation Technician		
		22	01	2.D.22	1.G.01-18 1.G.01-06 1.G.01-02	Vibrator Translocator	1081	000.000	General Technical Skill		
		27	01	2.D.22	2.B.06-16 2.D.52 3.I.04 4.D.22-1	Vibrator Installer	1079	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-04-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	18	01	2.D.18	4.D.20	Dispersion Control System Unstower	1105	003.281	Instrumentation Technician		
					4.D.02						
		22	01	2.D.18	1.G.01-18	Dispersion Control System Translocator	2310	000.000	General Technical Skill		
					1.G.01-06						
					1.G.01-02						
		27	01	2.D.18	2.B.06-12	Dispersion Control System Installer	2311	003.181	Electrical Technician		
					2.D.19						
					2.D.24-1						
					3.I.04						
					2.C.14						
					2.D.52						
		18	01	2.D.19	4.D.20	Materials Forming Equipment Unstower	1017	003.281	Instrumentation Technician		
					4.D.02						
		22	01	2.D.19	1.G.01-18	Materials Forming Equipment Translocator	1018	000.000	General Technical Skill		
					1.G.01-06						
					1.G.01-02						
27	01	2.D.19	2.D.24-1	Materials Forming Equipment Installer	1016	003.181	Electrical Technician				
			3.I.04								
			2.C.14								
			2.D.18								
18	01	2.D.32	4.D.20	Heating/Positioning Coils Unstower	1271	003.281	Instrumentation Technician				
			4.D.02								
22	01	2.D.32	1.G.01-18	Heating/Positioning Coils Translocator	1270	000.000	General Technical Skill				
			1.G.01-06								
			1.G.01-02								
27	01	2.D.32	3.I.04	Heating/Positioning Coils Installer	1269	003.181	Electrical Technician				
			2.B.06-11								
			2.D.24-1								
18	01	2.A.17-7	4.D.20	Camera Unstower	0292	003.281	Instrumentation Technician				
			4.D.02								
22	01	2.A.17-7	1.G.01-18	Camera Translocator	1226	000.000	General Technical Skill				
			1.G.01-06								
			1.G.01-02								
27	01	2.A.17-7	3.I.04	Camera Installer	0039	003.181	Electrical Technician				
			2.C.23								
			2.D.24-1								
			1.G.01-7								
			2.C.24								
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-04-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
31	(Continued)	18	01	2.A.04-3	4.D.02 4.D.20	TV Camera Unstower	0054	003.281	Instrumentation Technician				
		22	01	2.A.04-3	1.G.01-18 1.G.01-2 1.G.01-6	TV Camera Translocator	0026	000.000	General Technical Skill				
		27	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-4 2.D.13-2 2.D.32 2.D.24-1	TV Camera Installer	0306	003.181	Electrical Technician				
		18	01	2.A.43	4.D.02 4.D.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician				
		22	01	2.A.43	1.G.01-18 1.G.01-2 1.G.01-6	Holographic Device Translocator	1239	000.000	General Technical Skill				
		27	01	2.A.43	2.B.06-14 2.C.26 3.I.04	Holographic Device Installer	1238	003.181	Electrical Technician				
		18	01	2.D.50	4.D.02	Slip Cast Injection System Unstower	1116	003.281	Instrumentation Technician				
		22	01	2.D.50	1.G.01-18 1.G.01-2 1.G.01-6	Slip Cast Injection System Translocator	1117	000.000	General Technical Skill				
		27	01	2.D.50	2.B.06-33 3.I.04-9 2.C.23 2.D.18 2.D.19	Slip Cast Injection System Installer	1115	003.181	Electrical Technician				
		32	Reconfigure experiments	26	01	2.C.23	2.D.24-1 2.D.19	Metal Samples Remover	1255		011.281	Metallurgist Assistant	
				26	01	2.C.24	2.D.24-1 2.D.19	Immiscible Liquid Sample Remover	2316		011.281	Metallurgist Assistant	
				27	01	2.C.23	2.D.24-1 2.D.19 3.I.04-9	Metal Samples Installer	1254		011.281	Metallurgist Assistant	
27	01			2.C.24	2.D.24-1 2.D.19 3.I.04-10	Immiscible Liquid Sample Installer	2317	011.281	Metallurgist Assistant				
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE 5-3.2-04-4				

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	15	01	2.B.06-11	2.D.32 3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Positioning Coil Control Actuator	1260	003.281	Instrumentation Technician		
		26	01	2.D.32	3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Positioning Coil Remover	1268	003.181	Electrical Technician		
		27	01	2.D.32	2.B.06-11 3.I.06-1 2.C.26 2.D.52 2.D.13-1 2.D.13-2 4.D.22-1	Heating/Positioning Coil Installer	1269	003.181	Electrical Technician		
		26	01	2.D.13-1	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
		27	01	2.D.13-1	4.D.18 3.I.04	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
		26	01	2.D.13-2	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
		27	01	2.D.13-2	4.D.18 3.I.04	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
		15	01	2.B.06-1	3.I.04 2.C.23 2.C.24	Computer Control Actuator	0847	003.281	Instrumentation Technician		
		26	01	2.A.17-7	2.C.23 2.C.24 2.D.24-1 1.G.01-7	Camera Remover	0314	003.181	Electrical Technician		
		27	01	2.A.17-7	2.C.23 2.C.24 2.D.24-1 1.G.01-7	Camera Installer	0039	003.181	Electrical Technician		

REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-04-5	
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	15	01	2.B.06-2	3.I.04 2.C.23 2.C.24	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.B.06-1 2.D.13-1 2.D.13-2 3.I.04 2.C.23 2.C.24	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.04 2.C.23 2.C.24	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.04 2.C.23 2.C.24	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician		
		27	01	4.D.13	4.D.18 3.I.04 2.C.23 2.C.24	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-10	4.D.18 2.D.24-1 3.I.04 2.C.23 2.C.24	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		26	01	2.D.24-1	3.I.04 2.C.23 2.C.24	Furnace Module Remover	0981	003.181	Electrical Technician		
		27	01	2.D.24-1	4.D.18 3.I.04 2.C.23 2.C.24	Furnace Module Installer	0982	003.181	Electrical Technician		
		26	01	2.D.22	4.D.18 3.I.04 2.C.23 2.C.24	Vibrator Remover	1082	003.181	Electrical Technician		
		27	01	2.D.22	4.D.18 3.I.04 2.C.23 2.C.24 4.D.18	Vibrator Installer	1079	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-3.2-04-6		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie									
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup									
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.							
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE								
32	(Continued)	26	01	2.D.18	3.I.04 2.C.23 2.C.24 4.D.18	Dispersion Control System Remover	2312	003.181	Electrical Technician								
		27	01	2.D.18	3.I.04 2.C.23 2.C.24 4.D.18	Dispersion Control System Installer	2311	003.181	Electrical Technician								
		15	01	2.8.06-17	2.D.52 3.I.04 2.C.23 2.C.24 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician								
		26	01	2.D.52	3.I.04 2.C.23 2.C.24 2.8.06-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician								
		27	01	2.D.52	3.I.04 2.C.23 2.C.24 2.8.06-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician								
		26	01	2.D.52	3.I.04 2.C.23 2.C.24 2.8.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician								
		27	01	2.D.52	3.I.04 2.C.23 2.C.24 2.8.06-17 4.D.13	VHF Power Unit Module Installer	1096	003.181	Electrical Technician								
		15	01	1.G.02-14	4.D.14 3.I.04 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.24-1	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician								
		REVISION NO:										REVISION DATE:	PREPARED BY: GRH/EMW	APPROVED BY: GRH	SERIES MS-1-A	PAGE MS-3.2-04-7	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	15	01	2.8.06-13	2.D.21-1 2.D.21-2 3.I.04 2.C.23 2.C.24	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician		
		27	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Remover	0994	003.181	Electrical Technician		
		27	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Remover	0994	003.181	Electrical Technician		
		27	01	2.D.21-3	2.D.13-2 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Remover	0994	003.181	Electrical Technician		
		26	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
		26	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
		26	01	2.D.21-3	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
		26	01	2.D.21-3	2.D.13-1 2.D.13-2 2.D.24-1 3.I.04 2.C.23 2.C.24	Mixing Unit Installer	0991	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-04-9	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.A.04-3	2.B.09 3.I.04 1.G.01-7 2.C.23 2.C.24	TV Camera Remover	0661	003.181	Electrical Technician		
		27	01	2.A.04-3	2.B.09 3.I.04 1.G.01-7 2.C.23 2.C.24	TV Camera Installer	0306	003.181	Electrical Technician		
		15	01	2.B.06-14	2.A.43 3.I.04 2.D.24-1 2.C.23 2.C.24	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
		26	01	2.A.43	2.B.06-14 3.I.04 2.D.24-1 2.C.23 2.C.24	Holographic Device Remover	1237	003.181	Electrical Technician		
		27	01	2.A.43	2.B.06-14 3.I.04 2.D.24-1 2.C.23 2.C.24	Holographic Device Installer	1238	003.181	Electrical Technician		
		15	01	2.B.06-33	2.D.50 3.I.04 2.C.23 2.C.24 2.D.18 2.D.19	Slip Cast Injection System Control Actuator	2327	003.281	Instrumentation Technician		
		26	01	2.D.50	2.B.06-33 3.I.04 2.C.23 2.C.24 2.D.18 2.D.19	Slip Cast Injection System Remover	1118	003.181	Electrical Technician		
		27	01	2.D.50	2.B.06-33 3.I.04 2.C.23 2.C.24 2.D.18 2.D.19	Slip Cast Injection System Installer	1115	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-04-9	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
35	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator		
		08	01	2.D.52	4.C.01	VHF Power Unit Calibrator	1097	710.884	Calibrator		
		08	01	2.D.32	4.C.01	Heating/Positioning Coil Calibrator	1333	710.884	Calibrator		
		08	01	2.A.43	4.C.01	Holographic Device Calibrator	1227	710.884	Calibrator		
		08	01	2.D.18	4.C.01	Dispersion Control System Calibrator	2313	710.884	Calibrator		
37	Define experiment apparatus configuration	11	01	3.I.04-9 3.I.04-10	2.C.23	Liquid Dispersions Research Evaluator	1353	011.281	Metallurgist Assistant		
					2.C.24						
					2.D.13-1						
					2.D.13-2						
					2.B.06-2						
					4.D.13						
					2.D.24-1						
					2.A.43						
					2.D.21-1						
					2.D.21-2						
					2.D.21-3						
					2.D.22						
					2.D.52						
					4.D.14						
					4.E.04-1						
					2.D.15						
					2.D.18						
					2.D.10						
					2.D.20						
					2.D.32						
2.A.17-7											
2.A.04-3											
2.D.50											
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-3.2-04-10	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
37	(Continued)	13	01	3.I.04-9 3.I.04-10	2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.B.05-2 4.D.13 2.D.24-1 2.A.43 2.D.21-1 2.D.21-2 2.D.21-3 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18 2.D.19 2.D.20 2.D.32 2.A.17-7 2.A.04-3 2.D.50	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-3.2-04-11	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
38	Define experiment conditions	13	01	3.I.04	2.C.23 2.C.24 2.B.06-1 2.D.13-1 2.D.13-2 4.D.13 2.D.32 2.D.50 2.D.24-1 2.D.21-1 2.D.21-3 2.D.22 2.D.52 4.D.14 4.E.04-1 2.D.15 2.D.18	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant		
46	Install data recording system	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	2.B.06-1 2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician		
50	Check out optical instrumentation and measuring devices	03	01	2.D.27	4.D.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems		
		03	01	2.A.17-7	4.D.09	Camera Inspector	0294	722.281	Inspector, Systems		
		03	01	2.A.04-3	4.D.09	TV Camera Inspector	0079	722.281	Inspector, Systems		
		03	01	2.A.43	4.D.09	Holographic Device Inspector	2270	722.281	Inspector, Systems		
		14	01	2.D.27	4.C.02	Materials Analysis Equipment Tester	1447	722.281	Inspector, Systems		
		14	01	2.A.17-7	4.C.02	Camera Tester	1448	722.281	Inspector, Systems		
		14	01	2.B.09	2.A.04-3 4.C.02	TV Camera Tester	0633	722.281	Inspector, Systems		
		14	01	2.B.06-14	2.A.43	Holographic Device Tester	1449	722.281	Inspector, Systems		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-04-13	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVTR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
17	Remove materials from mold	26	01	2.C.23	2.D.19-1 3.I.04-9	Slip Casting Remover	1358	011.281	Metallurgist Assistant		
		26	01	2.C.24	2.D.19-1 3.I.04-10	Immiscible System Casting Remover	1362	011.281	Metallurgist Assistant		
18	Store completed casting	22	01	2.C.23	1.G.01-18 1.G.01-6 1.G.01-2	Slip Casting Translocator	2318	000.000	General Technical Skill		
		22	01	2.C.24	1.G.01-18 1.G.01-6 1.G.01-2	Immiscible System Casting Translocator	2319	000.000	General Technical Skill		
		17	01	2.C.23	2.D.25 4.D.20 4.D.02	Slip Casting Stower	1359	003.281	Instrumentation Technician		
		17	01	2.C.24	2.D.25 4.D.20 4.D.02	Immiscible System Casting Stower	1360	003.281	Instrumentation Technician		
33	Clean experiment apparatus	19	01	2.D.13-1	2.C.24 2.C.23 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.13-2	2.C.23 2.C.24 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.24-1	2.C.23 2.C.24 4.D.05	Furnace Cleaner	0984	003.281	Instrumentation Technician		
		19	01	2.D.32	2.C.23 2.C.24 4.D.06	Heating/Positioning Coil Cleaner	1336	003.281	Instrumentation Technician		
		19	01	2.D.27	2.C.23 2.C.24 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician		
		19	01	2.D.21-1	2.C.23 2.C.24 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician		
		19	01	2.D.21-2	2.C.24 2.C.23 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-3.2-05-1		



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
33	(Continued)	19	01	2.D.21-3	2.C.24 2.C.23 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician	MS-3	
		19	01	2.D.18	2.C.24 2.C.23 4.D.06	Dispersion Control System Cleaner	1109	003.281	Instrumentation Technician		
		19	01	2.D.19	2.C.24 2.C.23 4.D.06	Materials Forming Equipment Cleaner	1021	003.281	Instrumentation Technician		
		19	01	2.D.50	2.C.23 4.D.06	Slip Cast Injection System Cleaner	1361	003.281	Instrumentation Technician		
41	Communicate experiment results to ground personnel	05	01	4.A.02	3.I.04-9 3.I.04-10 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.24-1 2.D.32 2.D.18	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.04	4.A.02 2.C.23 2.C.24 2.D.13-1 2.D.13-2 2.D.24-1	Liquid Dispersions Research Coordinator	2320	011.281	Metallurgist Assistant		
44	Develop film; make prints	06 06	01 01	4.B.08 4.D.19	2.A.27-6 2.A.27-6	Film Processor Film Processor	0328 0328	976.782 076.782	Film Processor Film Processor		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A			PAGEMS-3.2-05-2

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 06 - Experiment Conduct		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
4	Thoroughly mix material slip	10	01	2.D.21-4	3.I.04-9 2.C.23 2.D.21-1 2.D.21-2	Mixing Equipment Controller	2321	011.281	Metallurgist Assistant	
5	Force slip into mold	27	01	2.C.23	2.D.50 3.I.04-9	Slip Materials Installer	2322	011.281	Metallurgist Assistant	
		10	01	2.B.06-33	2.D.50 2.C.23 2.D.19	Slip Cast Injection System Controller	1363	011.281	Metallurgist Assistant	
6	Determine suitable casting time duration	13	01	3.I.04-9	2.C.23 2.D.19-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant	
		13	01	3.I.04-10	2.C.24 2.D.19-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant	
7	Open casting mold	21	01	2.D.19-1	2.C.23 2.C.24 4.D.18	Casting Mold Disassembler	2323	011.281	Metallurgist Assistant	
8	Strain (drain) excess slip from mold	26	01	2.C.23	2.D.19-1 4.D.06 2.G.05	Slip Materials Remover	1351	011.281	Metallurgist Assistant	
9	Dry the completed cast	27	01	2.D.19-1	2.C.23 4.D.22-1	Casting Mold Installer	2324	011.281	Metallurgist Assistant	
10	Determine suitable drying time	13	01	3.I.04-9	2.C.23 4.D.22-1 2.D.19-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant	
12	Insert immiscible system mixtures into mold	27	01	2.C.24	2.D.19-1 4.D.22-1	Immiscible Liquid Sample Installer	2317	011.281	Metallurgist Assistant	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-06-1

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
13	Heat mold to requisite sample melting temperature	27	01	2.D.19-1	2.C.24	Casting Mold Installer	2324	011.281	Metallurgist Assistant		
		11	01	3.I.04-10	2.D.24-1	Liquid Dispersions Research Evaluator	1353	011.281	Metallurgist Assistant		
		13	01	3.I.04-10	2.C.24	Liquid Dispersions Research Planner	1346	011.281	Metallurgist Assistant		
		15	01	2.B.06-10	2.D.24-1	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
					2.C.24						
					2.D.19-1						
					3.I.04-10						
14	Disperse liquified materials	15	01	2.B.06-12	2.D.18	Dispersion Control System Control Actuator	1176	011.281	Metallurgist Assistant		
					2.C.24						
					2.D.24-1						
15	Determine dispersion completion	11	01	3.I.04-10	2.C.24	Liquid Dispersion Research Evaluator	1353	011.281	Metallurgist Assistant		
		13	01	3.I.04-10	2.D.18	Liquid Dispersion Research Status Determiner	2325	011.281	Metallurgist Assistant		
					2.C.24						
					2.D.18						
					2.B.06-12						
16	Cool materials to room temperature	15	01	2.B.06-6	2.D.13-1	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
					2.D.13-2						
					2.D.24-1						
					2.C.24						
36	Schedule experiment runs	13	01	3.I.04-9	2.B.06-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant		
					2.B.06-2						
					2.C.23						
					6.A.02						
		13	01	3.I.04-10	2.B.06-1	Liquid Dispersion Research Planner	1346	011.281	Metallurgist Assistant		
					2.B.06-2						
					2.C.24						
					6.A.02						
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-3.2-06-2	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
39	Monitor experiment performance	01	01	3.I.04-9	2.C.23	Liquid Dispersion Research Monitor	2326	011.281	Metallurgist Assistant		
		01	01	3.I.04-10	2.B.06-2	Liquid Dispersion Research Monitor	2326	011.281	Metallurgist Assistant		
		01	01	2.B.06-6	2.C.24	Liquid Dispersion Research Monitor	2326	011.281	Metallurgist Assistant		
		01	01	2.B.06-6	2.B.06-2	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		01	01	2.B.06-7	2.D.13-1	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
		01	01	2.B.06-7	2.D.13-2	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
		01	01	2.B.06-9	2.D.15	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician		
		01	01	2.B.06-9	2.B.06-27	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician		
		01	01	2.B.06-10	2.D.34	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
		01	01	2.B.06-10	4.D.13	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
		01	01	2.B.06-10	2.B.06-17	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.52	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.24-1	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.13-1	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.13-2	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-17	2.D.52	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
		01	01	2.B.06-2	4.D.13	Computer Operation Monitor	1055	003.281	Instrumentation Technician		
		01	01	1.G.02-13	2.B.06-9	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician		
		01	01	1.G.02-13	2.B.06-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician		
		01	01	2.B.06	4.E.04-1	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician		
01	01	2.B.06	2.D.32	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician				
01	01	2.B.06-13	4.D.14	Heating/Positioning Coil Operation Monitor	1259	003.281	Instrumentation Technician				
01	01	2.B.06-13	1.G.02-14	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician				
01	01	2.B.06-13	2.D.21-1	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician				
01	01	2.B.06-13	2.D.21-2	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician				
01	01	2.B.06-13	2.D.21-3	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician				
01	01	2.B.06-16	2.D.22	Vibrator Operation Monitor	1086	003.281	Instrumentation Technician				
01	01	1.G.02-14	2.D.22	Heat Rejection System Operation Monitor	1086	003.281	Instrumentation Technician				
01	01	1.G.02-14	4.D.14	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician				
01	01	2.B.06-12	2.D.24-1	Dispersion Control System Operation Monitor	1110	003.281	Instrumentation Technician				
01	01	2.B.06-12	2.D.18	Dispersion Control System Operation Monitor	1110	003.281	Instrumentation Technician				
01	01	2.B.06-14	2.A.43	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician				
01	01	2.B.06-14	2.C.23	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician				
01	01	2.B.06-14	2.C.24	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician				
01	01	2.B.06-33	2.D.50	Slip Cast Injection System Operation Monitor	1122	003.281	Instrumentation Technician				
01	01	2.B.06-33	2.D.19-1	Slip Cast Injection System Operation Monitor	1122	003.281	Instrumentation Technician				
01	01	2.B.06-33	2.C.23	Slip Cast Injection System Operation Monitor	1122	003.281	Instrumentation Technician				
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE 45-3.2-06-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
40	Evaluate experiment results	11	01	3.I.04-9	2.C.23 2.D.27 2.F.04	Liquid Dispersion Research Evaluator	1353	011.281	Metallurgist Assistant		
		11	01	3.I.04-10	2.C.24 2.D.27 2.F.04	Liquid Dispersion Research Evaluator	1353	011.281	Metallurgist Assistant		
47	Operate measuring, recording, and transmission system and equipment	15	01	2.A.17-7	2.C.23 2.C.24	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.09	2.A.04-3 2.C.23 2.C.24	TV Camera Control Actuator	0899	003.281	Instrumentation Technician		
		15	01	2.B.06-14	2.A.43 2.C.23 2.C.24	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
		05	01	4.A.02	3.I.04-9 3.I.04-10	Radio Communicator	0206	003.187	Radio Engineer		
		15	01	1.G.02-12	4.A.01	Telemetry Control Actuator	0662	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.2-06-4		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL			REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
		28	01	2.D.13-1	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		28	01	2.D.13-2	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		07	01	2.B.06-5	4.D.22-1 4.C.02	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic		
		28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.B.06-9	4.D.13 4.C.02 2.B.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-10	2.D.24-1 4.C.02	Furnace Fault Identifier	0989	828.281	Electronics Mechanic		
		28	01	2.D.24-1	4.D.18	Furnace Repairer	0988	828.281	Electronics Mechanic		
		07	01	2.B.06-13	2.D.21-1 2.D.21-2 2.D.21-3 4.C.02	Mixing Unit Fault Identifier	1003	828.281	Electronics Mechanic		
		28	01	2.D.21-1	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		28	01	2.D.21-2	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		28	01	2.D.21-3	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		07	01	2.B.06-16	2.D.22 4.C.02	Vibrator Fault Identifier	1090	828.281	Electronics Mechanic		
		28	01	2.D.22	4.D.18	Vibrator Repairer	1089	828.281	Electronics Mechanic		
		07	01	2.B.06-17	2.D.52 4.C.02 2.B.06-9	VHF Power Unit Fault Identifier	1103	828.281	Electronics Mechanic		
		28	01	2.D.52	4.D.18	VHF Power Unit Repairer	1102	828.281	Electronics Mechanic		
		07	01	2.B.06-2	2.B.06-1 4.C.02	Computer Fault Identifier	0523	828.281	Electronics Mechanic		
		28	01	2.B.06-1	4.D.18	Computer Repairer	0540	828.281	Electronics Mechanic		
		07	01	1.G.02-14	4.D.14 4.C.02	Heat Rejection System Fault Identifier	1150	828.281	Electronics Mechanic		
		28	01	4.D.14	4.D.18	Heat Rejection System Repairer	1149	828.281	Electronics Mechanic		
		07	01	1.G.02-13	4.E.04-1 4.C.02	Accident Control System Fault Identifier	2267	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-3.2-10-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-3				EXPERIMENT: 3.0 Furnace Experiments 3.2 Directional Solidification (See Note MS-7)				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	(Continued)	28	01	4.E.04-1	4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic		
		07	01	2.B.06-12	2.D.18	Dispersion Control System Fault Identifier	1114	828.281	Electronics Mechanic		
		28	01	2.D.18	4.D.18	Dispersion Control System Repairer	1113	828.281	Electronics Mechanic		
		07	01	2.B.06-11	2.D.32	Heating/Positioning Coils Fault Identifier	1264	828.281	Electronics Mechanic		
		28	01	2.D.32	4.D.18	Heating/Positioning Coil Repairer	1263	828.281	Electronics Mechanic		
		07	01	2.A.17-7	4.C.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
		28	01	2.A.17-7	4.C.07	Camera Repairer	1195	828.281	Electronics Mechanic		
		07	01	2.B.09	4.D.18	TV Camera Fault Identifier	0689	828.281	Electronics Mechanic		
					2.A.04-3						
					4.C.02						
					4.C.07						
		28	01	2.A.04-3	4.D.18	TV Camera Repairer	0690	828.281	Electronics Mechanic		
		07	01	2.B.06-14	2.A.43	Holographic Device Fault Identifier	1233	828.281	Electronics Mechanic		
					4.C.02						
					4.C.01						
					4.C.07						
		28	01	2.A.43	4.D.18	Holographic Device Repairer	1232	828.281	Electronics Mechanic		
		07	01	2.B.06-33	2.D.50	Slip Cast Injection System Fault Identifier	1126	828.281	Electronics Mechanic		
		28	01	2.D.50	4.D.18	Slip Cast Injection System Repairer	1125	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-3.2-10-2		

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL**

#### **REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-4**

**EXPERIMENT: 4.0 SMALL AND LOW TEMPERATURE EXPERIMENTS  
4.1 CONVECTION OF FLUIDS**



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
3	Program experiment control equipment	15	01	2.B.06-4	2.D.13-3 3.I.08	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.D.13-1 3.I.08	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-5	4.D.22-1 3.I.08	General Purpose Lab Bench Control Actuator	2260	003.281	Instrumentation Technician		
		15	01	2.B.06-7	2.D.15 3.I.08	Atmosphere Supply/Control System Control Actuator	1174	003.281	Instrumentation Technician		
		15	01	2.B.06-9	2.C.27 4.D.13	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		15	01	2.B.06-10	3.I.08 2.D.24-1	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		15	01	2.B.06-29	2.C.27 2.A.30-1	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
		15	01	1.G.02-14	2.C.27 4.D.14	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	1.G.02-13	2.D.24-1 4.E.04-1	Accident Control System Control Actuator	2261	003.281	Instrumentation Technician		
		15	01	2.B.06-13	3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician		
		15	01	2.B.06-15	2.D.21-1 2.D.21-2	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician		
		15	01	2.B.06-16	3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician		
		15	01	2.B.06-16	2.D.22 3.I.08	Vibrator Control Actuator	1182	003.281	Instrumentation Technician		
		15	01	2.B.06-18	2.C.27 2.D.56	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.1-04-1		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie																											
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup																											
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.																									
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE																										
4	Prepare fluid samples	13	01	3.I.08	2.C.27	Fluid Convection Research Planner	1648	023.081 022.081	Physicist, Heat Chemist, Physical																										
					2.D.21-1																														
					2.D.21-2																														
					2.D.21-3																														
					2.D.24-1																														
		18	01	2.C.27	4.D.20	Fluid Samples Unstower	1652	003.281	Instrumentation Technician																										
					2.D.25																														
					1.G.01-18																														
					1.G.01-6																														
					1.G.01-2																														
		22	01	2.C.27	2.D.21-1	Fluid Samples Translocator	1651	000.000	General Technical Skill																										
					2.D.21-2																														
					2.D.21-3																														
					3.I.08																														
					2.D.19																														
		27	01	2.C.27	3.I.08	Fluid Samples Installer	1650	003.281	Instrumentation Technician																										
					2.D.21-1																														
					2.D.21-2																														
					2.D.21-3																														
					2.D.21-3																														
		10	01	2.C.27	2.D.21-1	Fluid Sample Mixing Controller	1647	023.081 022.081	Physicist, Heat Chemist, Physical																										
					2.D.21-2																														
					2.D.21-2																														
					2.D.21-2																														
					2.D.21-3																														
31	Set up experiment apparatus	18	01	2.D.13-3	4.D.02	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician																										
					2.B.06-4																														
					4.D.02						Environmental Chamber Unstower	1058	003.281	Instrumentation Technician																					
					2.B.06-6																														
					4.D.02											Environmental Chamber Unstower	1058	003.281	Instrumentation Technician																
					2.B.06-6																														
					4.D.02																Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician											
					2.B.06-6																														
					4.D.02																					Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician						
					4.D.02																														
					4.D.13																										Power Conditioning/Distribution System Unstower	1153	003.281	Instrumentation Technician	
					2.B.06-9																														
					4.D.02																														
2.B.06-10																																			
4.D.14	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician																															
1.G.02-14																																			
4.D.02						General Purpose Lab Bench Unstower	2252	003.281	Instrumentation Technician																										
4.D.02																																			
4.D.22-1											Accident Control System Unstower	2253	003.281	Instrumentation Technician																					
4.B.01-1																																			
4.D.02																																			
1.G.02-13																																			
REVISION NO:																REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE'S-4.1-04-2											

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
31	(Continued)	18	01	2.D.21-1	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		18	01	2.D.21-2	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		18	01	2.D.21-3	4.D.02 4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician	
		22	01	2.D.21	1.G.01-18 1.G.01-6 1.G.01-2	Mixing Unit Translocator	0993	000.000	General Technical Skill	
		27	01	2.D.21-1	2.B.06-13 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
		27	01	2.D.21-2	2.B.05-13 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
		27	01	2.D.21-3	2.B.06-15 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	
		18	01	2.D.22	4.D.02 4.D.20	Vibrator Unstower	1080	003.281	Instrumentation Technician	
		22	01	2.D.22	1.G.01-18 1.G.01-06 1.G.01-02	Vibrator Translocator	1081	000.000	General Technical Skill	
		27	01	2.D.22	2.B.06-16 3.I.08	Vibrator Installer	1079	003.181	Electrical Technician	
		18	01	2.D.18	4.D.20 4.D.02	Dispersion Control System Unstower	1105	003.281	Instrumentation Technician	
		22	01	2.D.18	1.G.01-18 1.G.01-06 1.G.01-02	Dispersion Control System Translocator	2310	000.000	General Technical Skill	
		27	01	2.D.18	2.B.06-12 2.D.19 2.D.24-1 3.I.08 2.C.27	Dispersion Control System Installer	2311	003.181	Electrical Technician	
		18	01	2.D.19	4.D.20 4.D.02	Materials Forming Equipment Unstower	1017	003.281	Instrumentation Technician	
		22	01	2.D.19	1.G.01-18 1.G.01-06 1.G.01-02	Materials Forming Equipment Translocator	1018	000.000	General Technical Skill	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.1-04-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	27	01	2.D.19	2.D.24-1 3.I.08 2.C.27 2.D.18	Materials Forming Equipment Installer	1016	003.181	Electrical Technician		
		18	01	2.A.17-7	4.D.20 4.D.02	Camera Unstower	0292	003.281	Instrumentation Technician		
		22	01	2.A.17-7	1.G.01-18 1.G.01-06 1.G.01-02	Camera Translocator	1226	000.000	General Technical Skill		
		27	01	2.A.17-7	3.I.08 2.C.27 2.D.24-1 1.G.01-7	Camera Installer	0039	003.181	Electrical Technician		
		18	01	2.A.04-3	4.D.02 4.D.20	TV Camera Unstower	0054	003.281	Instrumentation Technician		
		22	01	2.A.04-3	1.G.01-18 1.G.01-2 1.G.01-6	TV Camera Translocator	0026	000.000	General Technical Skill		
		27	01	2.A.04-3	1.G.01-7 2.B.09 2.D.13-3 2.D.13-1 2.D.13-2 2.D.24-1	TV Camera Installer	0306	003.281	Instrumentation Technician		
		18	01	2.A.30-1	4.D.02 4.D.20	Calorimeter Unstower	1482	003.281	Instrumentation Technician		
		22	01	2.A.30-1	1.G.01-18 1.G.01-2 1.G.01-6	Calorimeter Translocator	1481	000.000	General Technical Skill		
		27	01	2.A.30-1	2.B.06-29 2.D.13-1 2.D.13-2 2.D.13-3	Calorimeter Installer	1480	003.181	Electrical Technician		
		18	01	2.D.56	4.D.02 4.D.20	Heating/Cooling Device Unstower	1253	003.281	Instrumentation Technician		
		22	01	2.D.56	1.G.01-18 1.G.01-2 1.G.01-6	Heating/Cooling Device Translocator	1252	000.000	General Technical Skill		
		27	01	2.D.56	2.B.06-18 2.A.18	Heating/Cooling Device Installer	1251	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.1-04-4		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	18	01	2.A.39-1	4.D.02	Interferometer Unstower	1602	003.281	Instrumentation Technician		
		22	01	2.A.39-1	4.D.20	Interferometer Translocator	1603	000.000	General Technical Skill		
					1.G.01-18						
27	01	2.A.39-1	1.G.01-2	Interferometer Installer	1601	003.181	Electrical Technician				
			1.G.01-6								
			2.B.06-8								
			2.D.13-1								
32	Reconfigure experiments	26	01	2.C.27	2.D.13-2	Fluid Samples Remover	1653	003.281	Instrumentation Technician		
					2.D.13-3						
		27	01	2.C.27	2.D.13-1	Fluid Samples Installer	1650	003.281	Instrumentation Technician		
					2.D.19						
		26	01	2.D.13-3	3.I.08	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
					4.D.18						
		27	01	2.D.13-3	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
					3.I.08						
		26	01	2.D.13-1	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
					3.I.08						
		27	01	2.D.13-1	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
					3.I.08						
26	01	2.D.13-2	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician				
			3.I.08								
27	01	2.D.13-2	4.D.18	Environmental Chamber Module Installer	1060	003.181	Electrical Technician				
			3.I.08								
26	01	2.A.17-7	2.C.27	Camera Remover	0314	003.181	Electrical Technician				
			2.D.24-1								
27	01	2.A.17-7	1.G.01-7	Camera Installer	0039	003.181	Electrical Technician				
			2.C.27								
26	01	2.A.04-3	2.D.24-1	TV Camera Remover	0661	003.181	Electrical Technician				
			1.G.01-7								
27	01	2.A.04-3	2.B.09	TV Camera Installer	0306	003.181	Electrical Technician				
			3.I.04								
			1.G.01-7								
			2.C.27								
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.1-04-5	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	15	01	2.B.06-2	3.I.04 2.C.27	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician		
		15	01	2.B.06-6	2.B.06-1 2.D.13-1 2.D.13-2	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-9	3.I.08 2.C.27 4.D.13	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.08 2.C.27	Power Conditioning/Distribution System Module Remover	1134	003.281	Instrumentation Technician		
		27	01	4.D.13	4.D.18 3.I.08 2.C.27	Power Conditioning/Distribution System Module Installer	1135	003.281	Instrumentation Technician		
		15	01	2.B.06-10	4.D.18 2.D.24-1 3.I.08	Furnace Control Actuator	1175	003.281	Instrumentation Technician		
		26	01	2.D.24-1	2.C.27 3.I.08	Furnace Module Remover	0981	003.181	Electrical Technician		
		27	01	2.D.24-1	4.D.18 3.I.08	Furnace Module Installer	0982	003.181	Electrical Technician		
		26	01	2.D.22	2.C.27 4.D.18	Vibrator Remover	1082	003.181	Electrical Technician		
		27	01	2.D.22	3.I.08 2.C.27	Vibrator Installer	1079	003.181	Electrical Technician		
		26	01	2.D.18	4.D.18 3.I.08	Dispersion Control System Remover	2312	003.181	Electrical Technician		
		27	01	2.D.18	2.C.27 4.D.18 3.I.08	Dispersion Control System Installer	2311	003.181	Electrical Technician		
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
32	(Continued)	15	01	2.B.06-4	2.D.13-3 3.I.08	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician	
		15	01	1.G.02-14	4.D.14 3.I.08 2.C.27	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician	
		15	01	2.B.06-13	2.D.13-1 2.D.13-2 2.D.24-1 2.D.21-1 2.D.21-2 3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
		15	01	2.B.06-15	2.D.21-3 3.I.08 2.C.27	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician	
		27	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Remover	0994	003.181	Electrical Technician	
		27	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Remover	0994	003.181	Electrical Technician	
		27	01	2.D.21-3	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Remover	0994	003.181	Electrical Technician	
		26	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician	

REVISION NO:	REVISION DATE:	PREPARED BY: GRH/EMW	APPROVED BY: GRH	SERIES MS-1-A	PAGEMS-4.1-04-7
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	26	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician		
		26	01	2.D.21-3	2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 3.I.08 2.C.27	Mixing Unit Installer	0991	003.181	Electrical Technician		
		15	01	2.B.06-7	2.D.15 3.I.08 2.C.27	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician		
		15	01	2.B.06-29	2.A.30-1 3.I.08 2.C.27	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
		26	01	2.A.30-1	2.B.06-29 2.D.13-1 2.D.13-2 2.D.13-3 2.C.27 3.I.08	Calorimeter Remover	1479	003.181	Electrical Technician		
		27	01	2.A.30-1	2.B.06-29 2.D.13-1 2.D.13-2 2.D.13-3 2.C.27 3.I.08	Calorimeter Installer	1480	003.181	Electrical Technician		
		15	01	2.B.06-18	2.D.56 2.A.18 3.I.08 2.C.27	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
		26	01	2.D.56	2.A.18 3.I.08 2.C.27	Heating/Cooling Device Remover	1250	003.181	Electrical Technician		
		27	01	2.D.56	2.A.18 3.I.08 2.C.27	Heating/Cooling Device Installer	1251	003.181	Electrical Technician		

REVISION NO:	REVISION DATE:	PREPARED BY: GRH/EMW	APPROVED BY: GRH	SERIES MS-1-A	PAGE MS-4.1-04-8
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# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
32	(Continued)	15	01	2.B.06-8	2.A.39-1 3.I.08 2.C.27	Interferometer Control Actuator	1616	003.281	Instrumentation Technician		
		26	01	2.A.39-1	2.B.06-8 2.D.13-1 2.D.13-2 2.D.13-3 3.I.08 2.C.27	Interferometer Remover	1604	003.181	Electrical Technician		
		27	01	2.A.39-1	2.B.05-8 2.D.13-1 2.D.13-2 2.D.13-3 3.I.08 2.C.27	Interferometer Installer	1601	003.181	Electrical Technician		
35	Calibrate Instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.881	Calibrator		
		08	01	2.D.18	4.C.01	Dispersion Control System Calibrator	2313	710.881	Calibrator		
		08	01	2.A.30-1	4.C.01	Calorimeter Calibrator	0380	710.881	Calibrator		
		08	01	2.A.39-1	4.C.01	Interferometer Calibrator	1605	710.881	Calibrator		
37	Define apparatus configuration	11	01	3.I.08	2.C.27	Fluid Convection Research Evaluator	1649	023.081 022.081	Physicist, Heat Chemist, Physical		
					2.D.13-1						
					2.D.13-2						
					2.D.13-3						
					4.D.22-1						
					2.D.15						
					4.D.13						
					2.D.18						
					2.A.17-7						
					2.A.04-3						
					2.A.30-1						
					2.D.21-1						
					2.D.21-2						
					2.D.21-3						
					4.E.04-1						
					2.D.22						
					4.D.14						
(Continued on following page)											
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING			FPE: MS-1 Materials Sciences and Manufacturing in Space			MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload MS-4			EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids			BASIC FUNCTION: 04 - Experiment Setup				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
32	(Continued)	13	01	3.1.08	(Continued from previous page) 4.B.08 2.D.19 2.B.06-2 2.D.24-1 2.D.56 2.A.18 2.A.39-1 2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 4.D.22-1 2.D.15 4.D.13 2.D.18 2.A.17-7 2.A.04-3 2.A.30-1 2.D.21-1 2.D.21-2 2.D.21-3 4.E.04-1 2.D.22 4.D.14 4.B.08 2.D.19 2.B.06-2 2.D.24-1 2.D.56 2.A.18 2.A.39-1	Fluid Convection Research Planner	1648	023.081 022.081	Physicist, Heat Chemist, Physical	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.1-04-10	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
38	Define experiment conditions	13	01	3.I.08	2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 4.D.22-1 2.D.15 4.D.13 2.D.18 2.A.17-7 2.A.04-3 2.A.30-1 2.D.21-1 2.D.21-2 2.D.21-3 4.E.04-1 2.D.22 4.D.14 4.B.08 2.D.19 2.B.06-2 2.D.24-1 2.D.56 2.A.18 2.A.39-1	Fluid Convection Research Planner	1648	023.081 022.081	Physicist, Heat Chemist, Physical		
46	Install data recording systems	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician		
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill		
		27	01	4.D.10	2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician		
50	Checkout optical instrumentation and measuring devices	03	01	2.D.27	4.D.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems		
		03	01	2.A.17-7	4.D.09	Camera Inspector	0294	722.281	Inspector, Systems		
		03	01	2.A.04-3	4.D.09	TV Camera Inspector	0079	722.281	Inspector, Systems		
		03	01	2.A.39-1	4.D.09	Interferometer Inspector	2243	722.281	Inspector, Systems		
		14	01	2.D.27	4.C.02	Materials Analysis Equipment Tester	1447	003.181	Electrical Technician		
		14	01	2.A.17-7	4.C.02	Camera Tester	1448	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-4.1-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-1				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
50	(Continued)	14	01	2.B.09	2.A.04-3 4.C.02	TV Camera Tester	0633	003.181	Electrical Technician		
		14	01	2.B.06-8	2.A.29-1	Interferometer Tester	1606	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIESMS-1-A		PAGE MS-4.1-04-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 05 - Experiment Shutdown					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
33	Clean experiment apparatus	19	01	2.D.13-1	4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician				
		19	01	2.D.13-2	2.C.27 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician				
		19	01	2.D.24-1	2.C.27 4.D.06	Furnace Cleaner	0984	003.281	Instrumentation Technician				
		19	01	2.D.27	2.C.27 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician				
		19	01	2.D.21-1	2.C.27 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician				
		19	01	2.D.21-2	2.C.27 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician				
		19	01	2.D.21-3	2.C.27 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician				
		19	01	2.D.18	2.C.27 4.D.06	Dispersion Control System Cleaner	1109	003.281	Instrumentation Technician				
		19	01	2.D.19	2.C.27 4.D.06	Materials Forming Equipment Cleaner	1021	003.281	Instrumentation Technician				
		19	01	2.D.13-3	4.D.06 2.C.27	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician				
		19	01	2.A.30-1	4.D.06 2.C.27	Calorimeter Cleaner	1500	003.281	Instrumentation Technician				
		41	Communicate experiment results to ground personnel	05	01	4.A.02	3.I.08 2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 2.A.39-1 2.D.18	Radio Communicator	0206		003.187	Radio Engineer	
				05	01	3.I.08	4.A.02 2.C.27 2.D.13-1 2.D.13-2 2.D.13-3 2.D.24-1 2.A.18 2.A.29-1	Fluid Convection Research Coordinator	2328		023.081 022.081	Physicist, Heat Chemist, Physical	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-4.1-05-1			

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
44	Develop film; make prints	06 06	01 01	4.B.08 4.D.19	2.A.27-6 2.A.27-6	Film Processor Film Processor	0328 0328	976.782 976.782	Film Processor Film Processor	MS-3	
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-4.1-05-2	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
2	Monitor experiment conduct	01	01	3.I.08	2.C.27	Fluid Convection Research Monitor	2329	023.081	Physicist, Heat		
			01		2.B.05-2			022.081	Chemist, Physical		
		01	01	2.B.06-6	2.D.13-1	Environmental Chamber Operation	1141	003.281	Instrumentation Technician		
			01		2.D.13-2	Monitor					
		01	01	2.B.06-4	2.D.13-3	Environmental Chamber Operation	1141	003.281	Instrumentation Technician		
			01			Monitor					
		01	01	2.B.06-7	2.D.15	Atmosphere Supply/Control System	1129	003.281	Instrumentation Technician		
			01			Operation Monitor					
		01	01	2.B.06-9	4.D.13	Power Conditioning/Distribution	1136	003.281	Instrumentation Technician		
			01			System Operation Monitor					
		01	01	2.B.06-10	2.D.24-1	Furnace Operation Monitor	0985	003.281	Instrumentation Technician		
					2.D.13-1						
					2.D.13-2						
					2.D.13-3						
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation	2264	003.281	Instrumentation Technician		
				Monitor							
01	01	2.B.06-13	2.D.21-1	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician				
			2.D.21-2								
01	01	2.B.06-15	2.D.21-3	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician				
01	01	2.B.06-16	2.D.22	Vibrator Operation Monitor	1086	003.281	Instrumentation Technician				
01	01	1.G.02-14	4.D.14	Heat Rejection System Operation	1146	003.281	Instrumentation Technician				
			2.D.24-1	Monitor							
01	01	2.B.06-12	2.D.18	Dispersion Control System Operation	1110	003.281	Instrumentation Technician				
				Monitor							
01	01	2.B.06-29	2.A.30-1	Calorimeter Operation Monitor	0391	003.281	Instrumentation Technician				
			2.C.27								
01	01	2.B.06-18	2.D.56	Heating/Cooling Device Operation	1241	003.281	Instrumentation Technician				
			2.A.18	Monitor							
01	01	2.B.06-8	2.A.39-1	Interferometer Operation Monitor	1609	003.281	Instrumentation Technician				
36	Schedule experiment runs	13	01	3.I.08	2.B.06-2	Fluids Convection Research Planner	1648	023.081	Physicist, Heat		
					2.C.27		022.081	Chemist, Physical			
40	Evaluate experiment results	11	01	3.I.08	2.C.27	Fluid Convection Research Evaluator	1649	023.081	Physicist, Heat		
					2.D.27		022.081	Chemist, Physical			
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.1-06-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
47	Operate measuring, recording, and transmission systems and equipment	15	01	2.A.17-7	2.C.27	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.09	2.A.04-3	TV Camera Control Actuator	0899	003.281	Instrumentation Technician		
		15	01	2.B.06-8	2.C.27	Interferometer Control Actuator	1616	003.281	Instrumentation Technician		
		2.			2.A.39-1						
		05	01	4.A.02	3.I.08	Radio Communicator	0206	003.187	Radio Engineer		
		15	01	1.G.02-12	4.A.01	Telemetry Control Actuator	0662	003.281	Instrumentation Technician		
		15	01	2.B.06-29	2.A.30-1	Calorimeter Control Actuator	0392	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGES-4.1-06-2	



# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.8.06-4	2.D.13-3	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
					4.C.02						
		07	01	2.8.06-6	2.D.13-1	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
					2.D.13-2						
					4.C.02						
		28	01	2.D.13-1	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		28	01	2.D.13-2	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		28	01	2.D.13-3	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		07	01	2.8.06-5	4.D.22-1	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic		
					4.C.02						
		28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic		
		07	01	2.8.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.8.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.8.06-7	2.D.15	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic		
					4.C.02						
					2.8.06-27						
		28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic		
		07	01	2.8.06-9	4.D.13	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
					4.C.02						
					2.8.06-17						
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
07	01	2.8.06-10	2.D.24-1	Furnace Fault Identifier	0989	828.281	Electronics Mechanic				
			4.C.02								
28	01	2.D.24-1	4.D.18	Furnace Repairer	0988	828.281	Electronics Mechanic				
07	01	2.8.06-15	2.D.21-3	Mixing Unit Fault Identifier	1003	828.281	Electronics Mechanic				
			4.C.02								
07	01	2.8.06-13	2.D.21-1	Mixing Unit Fault Identifier	1003	828.281	Electronics Mechanic				
			2.D.21-2								
			4.C.02								
28	01	2.D.21-1	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic				
28	01	2.D.21-2	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic				
28	01	2.D.21-3	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic				
07	01	2.8.06-16	2.D.22	Vibrator Fault Identifier	1090	828.281	Electronics Mechanic				
			4.C.02								
28	01	2.D.22	4.D.18	Vibrator Repairer	1089	828.281	Electronics Mechanic				
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.1-10-1	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie					
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.1 Convection of Fluids				BASIC FUNCTION: 10 - Unscheduled Maintenance (See Note MS-4)					
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.			
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE				
48	(Continued)	07	01	1.G.02-14	4.D.14	Heat Rejection System Fault Identifier	1150	828.281	Electronics Mechanic				
		28	01	4.D.14	4.C.02	Heat Rejection System Repairer	1149	828.281	Electronics Mechanic				
		07	01	1.G.02-13	4.E.04-1	Accident Control System Fault Identifier	2267	828.281	Electronics Mechanic				
		28	01	4.E.04-1	4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic				
		07	01	2.B.06-12	2.D.18	Dispersion Control System Fault Identifier	1114	828.281	Electronics Mechanic				
		28	01	2.D.18	4.C.02	Dispersion Control System Repairer	1113	828.281	Electronics Mechanic				
		07	01	2.A.17-7	4.C.02	Camera Fault Identifier	0886	828.281	Electronics Mechanic				
		28	01	2.A.17-7	4.C.07	Camera Repairer	1195	828.281	Electronics Mechanic				
		07	01	2.B.09	4.D.18	TV Camera Fault Identifier	0689	828.281	Electronics Mechanic				
		28	01	2.A.04-3	4.C.02	TV Camera Repairer	0690	828.281	Electronics Mechanic				
		07	01	2.B.06-29	4.C.07	Calorimeter Fault Identifier	0376	828.281	Electronics Mechanic				
		28	01	2.A.30-1	4.D.18	Calorimeter Repairer	1474	828.281	Electronics Mechanic				
		07	01	2.B.06-18	2.D.56	Heating/Cooling Device Fault Identifier	1246	828.281	Electronics Mechanic				
		28	01	2.D.56	4.D.18	Heating/Cooling Device Repairer	1245	828.281	Electronics Mechanic				
		07	01	2.B.06-8	2.A.39-1	Interferometer Fault Identifier	1614	828.281	Electronics Mechanic				
		28	01	2.A.39-1	4.C.02	Interferometer Repairer	1615	828.281	Electronics Mechanic				
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH			SERIES MS-1-A		PAGE MS-4.1-10-2

## **APPENDIX H**

### **FLIGHT EXPERIMENT TASK/SKILL**

#### **REQUIREMENTS**

**DISCIPLINE: MATERIALS SCIENCES & MANUFACTURING**

**FPE: MS-1-MATERIALS SCIENCE & MANUFACTURING IN SPACE**

**MISSION MODE: A-SHUTTLE SORTIE**

**EXPERIMENT AREA: SORTIE LAB PAYLOAD MS-4**

**EXPERIMENT: 4.0 SMALL AND LOW TEMPERATURE EXPERIMENTS  
4.2 CRYSTAL GROWTH FROM MELTS**

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Science and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
5	Adjust conditions for next experiment run per results of previous experiment run	11	01	3.I.05-2	2.C.25 2.D.29 2.D.51 2.D.13-1 2.D.13-2 4.D.14	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic - Glass		
		13	01	3.I.05-2	2.C.25 2.D.29 2.D.51 2.D.13-1 2.D.13-2 4.D.14	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic - Glass		
		26	01	2.C.25	2.D.29 2.D.51	Materials Sample Remover	1357	003.181	Electrical Technician		
		27	01	2.C.25	2.D.29 2.D.51	Materials Sample Installer	1356	003.181	Electrical Technician		
		26	01	2.D.13-1	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
		27	01	2.D.13-1	4.D.18 3.I.05-2	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
		26	01	2.D.13-2	4.D.18	Environmental Chamber Module Remover	1059	003.181	Electrical Technician		
		27	01	2.D.13-2	4.D.18 3.I.05-2	Environmental Chamber Module Installer	1060	003.181	Electrical Technician		
		15	01	2.B.06-2	3.I.05-2 2.C.25 2.B.06-1	Computer Control Actuator	0847	003.281	Instrumentation Technician		
		15	01	1.G.02-14	4.D.14 3.I.05-2 2.C.25 2.D.13-1 2.D.13-2 2.D.24 2.D.51	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
		15	01	2.B.06-2	3.I.05-2 2.C.25 2.B.06-1	Instrumentation and Control Center Control Actuator	2255	003.281	Instrumentation Technician		
		15	01	2.B.06-7	3.I.05-2 2.D.15 2.C.25	Atmosphere Supply and Control System Control Actuator	1174	003.281	Instrumentation Technician		
		26	01	2.D.15	3.I.05-2 2.C.25 4.D.18	Atmosphere Supply and Control System Module Remover	1127	003.131	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-4.2-04-1	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
5	(Continued)	27	01	2.D.15	3.I.05-2 2.C.25 4.D.18	Atmosphere Supply and Control System Module Installer	1128	003.181	Electrical Technician		
		15	01	2.B.06-6	2.D.13-2 2.D.13-2 3.I.05-2 2.C.25	Environmental Chamber Control Actuator	1173	003.281	Instrumentation Technician		
		15	01	2.B.06-9	4.D.13 3.I.05-2 2.C.25	Power Conditioning/Distribution System Control Actuator	1179	003.281	Instrumentation Technician		
		26	01	4.D.13	3.I.05-2 2.C.25 4.D.18	Power Conditioning/Distribution System Module Remover	1134	003.181	Electrical Technician		
		27	01	4.D.13	3.I.05-2 2.C.25 4.D.18	Power Conditioning/Distribution System Module Installer	1135	003.181	Electrical Technician		
		15	01	2.B.06-34	2.D.51 3.I.05-2 2.C.25	Zone Refiner Control Actuator	1425	003.281	Instrumentation Technician		
		26	01	2.D.51	3.I.05-2 2.C.25 4.D.18	Zone Refiner Module Remover	1430	003.181	Electrical Technician		
		27	01	2.D.51	3.I.05-2 2.C.25 4.D.18	Zone Refiner Module Installer	1431	003.181	Electrical Technician		
		15	01	2.B.06-35	2.D.29 3.I.05-2 2.C.25	Zone Melter Control Actuator	1405	003.281	Instrumentation Technician		
		26	01	2.D.29	3.I.05-2 2.C.25 4.D.18	Zone Melter Module Remover	1410	003.181	Electrical Technician		
		27	01	2.D.29	3.I.05-2 2.C.25 4.D.18	Zone Melter Module Installer	1411	003.181	Electrical Technician		
		26	01	2.A.43	3.I.05-2 2.C.25 4.D.18	Holographic Device Remover	1237	003.181	Electrical Technician		
		27	01	2.A.43	3.I.05-2 2.C.25 4.D.18	Holographic Device Installer	1238	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.2-04-2		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
5	(Continued)	26	01	2.A.43	3.I.05-2 2.C.25 4.D.18	Holographic Device Module Remover	1235	003.181	Electrical Technician		
		27	01	2.A.43	3.I.05-2 2.C.25 4.D.18	Holographic Device Module Installer	1234	003.181	Electrical Technician		
		15	01	2.B.06-17	2.D.52 3.I.05-2 2.C.25 4.D.13	VHF Power Unit Control Actuator	1183	003.281	Instrumentation Technician		
		26	01	2.D.52	3.I.05-2 2.C.25 2.B.05-17 4.D.13	VHF Power Unit Remover	1094	003.181	Electrical Technician		
		27	01	2.D.52	3.I.05-2 2.C.25 2.B.05-17 4.D.13	VHF Power Unit Installer	1091	003.181	Electrical Technician		
		26	01	2.D.52	3.I.05-2 2.C.25 2.B.06-17 4.D.13 4.D.18	VHF Power Unit Module Remover	1095	003.181	Electrical Technician		
		27	01	2.D.52	3.I.05-2 2.C.25 2.B.05-17 4.D.13 4.D.18	VHF Power Unit Module Installer	1096	003.181	Electrical Technician		
		15	01	2.B.06-24	2.D.49 3.I.05-2 2.C.25	Crystal Puller Control Actuator	1415	003.281	Instrumentation Technician		
		26	01	2.D.49	3.I.05-2 2.C.25 2.B.06-24 2.D.13-1 2.D.13-2	Crystal Puller Remover	1419	003.181	Electrical Technician		
		27	01	2.D.49	3.I.05-2 2.C.25 2.B.06-24 2.D.13-1 2.D.13-2	Crystal Puller Installer	1418	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.2-04-3	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS, SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
5	(Continued)	15	01	2.B.06-18	2.D.56 3.I.05-2 2.C.25 2.A.18	Heating/Cooling Device Control Actuator	1242	003.281	Instrumentation Technician		
		26	01	2.D.56	2.B.06-18 2.A.18 3.I.05-2 2.C.25	Heating/Cooling Device Remover	1250	003.181	Electrical Technician		
		27	01	2.D.56	2.B.06-18 2.A.18 3.I.05-2 2.C.25	Heating/Cooling Device Installer	1251	003.181	Electrical Technician		
		26	01	2.A.17-7	2.C.25 2.D.49 2.D.29 2.D.51 1.G.01-7	Camera Remover	0314	003.181	Electrical Technician		
		27	01	2.A.17-7	2.C.25 2.D.20 2.D.51 1.G.01-7 3.I.05-2	Camera Installer	0039	003.181	Electrical Technician		
		26	01	2.A.04-3	2.B.09 3.I.05-2 1.G.0107 2.D.29 2.D.51 2.D.49 2.C.25	TV Camera Remover	0661	003.181	Electrical Technician		
		27	01	2.A.04-3	2.B.09 3.I.05-2 1.G.01-7 2.D.29 2.D.51 2.D.49 2.C.25	TV Camera Installer	0306	003.181	Electrical Technician		
		15	01	2.B.06-13	2.D.21-1 2.D.21-2 3.I.05-2 2.C.25	Mixing Unit Control Actuator	1177	003.281	Instrumentation Technician		
		REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-4.2-04-4

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
5	(Continued)	27	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.49 2.D.29 2.D.51 3.I.05-2 2.C.25	Mixing Unit Remover	0994	003.181	Electrical Technician		
		27	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.49 2.D.29 2.D.51 3.I.05-2 2.C.25	Mixing Unit Remover	0994	003.181	Electrical Technician		
		26	01	2.D.21-1	2.D.13-1 2.D.13-2 2.D.49 2.D.29 2.D.51 3.I.05-2 2.C.25	Mixing Unit Installer	0991	003.181	Electrical Technician		
		26	01	2.D.21-2	2.D.13-1 2.D.13-2 2.D.49 2.D.29 2.D.51 3.I.05-2 2.C.25	Mixing Unit Installer	0991	003.181	Electrical Technician		
		15	01	1.G.02-14	4.D.14 3.I.05-2 2.D.51 2.D.29	Heat Rejection System Control Actuator	1184	003.281	Instrumentation Technician		
9	Insert selected test cell in holder assembly	18	01	2.D.57	4.D.02 4.D.20	Test Cell Stower	2331	003.281	Instrumentation Technician		
		22	01	2.D.57	1.G.01-18 1.G.01-6 1.G.01-2	Test Cell Translocator	2330	000.000	General Technical Skill		
		27	01	2.D.57	2.D.59 3.I.05-2	Test Cell Installer	1446	003.181	Electrical Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.2-04-5	



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
10	Manually program heat sources	15	01	2.B.06-36	2.D.59 3.I.05-2 2.C.25 2.D.57	Peltier Heater Control Actuator	2332	003.281	Instrumentation Technician	
13	Place silicon bar in furnace	27	01	2.C.25	2.D.51 2.D.13-1 2.D.13-2	Materials Sample Installer	1356	003.181	Electrical Technician	
		27	01	2.C.25	2.D.29 2.D.13-1 2.D.13-2	Materials Sample Installer	1356	003.181	Electrical Technician	
31	Set up experiment apparatus	18	01	2.C.25	4.D.20	Materials Sample Unstower	1354	003.281	Instrumentation Technician	
		22	01	2.C.25	1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Translocator	1355	000.000	General Technical Skill	
		27	01	2.C.25	2.D.29 2.D.51 3.I.05-2	Materials Samples Installer	1356	003.181	Electrical Technician	
		18	01	2.D.13-1	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.181	Electrical Technician	
		18	01	2.D.13-2	4.D.02 2.B.06-6	Environmental Chamber Unstower	1058	003.281	Instrumentation Technician	
		18	01	2.B.06-1	4.D.02 2.B.06-2	Computer Unstower	1054	003.281	Instrumentation Technician	
		18	01	2.B.06-2	4.D.02	Instrumentation and Control Center Unstower	2240	003.281	Instrumentation Technician	
		18	01	2.D.15	4.D.02 2.B.06-7	Atmosphere Supply and Control System Unstower	1162	003.281	Instrumentation Technician	
		18	01	4.D.13	4.D.02 2.B.06-9	Power Conditioning/Distribution System Unstower	1163	003.281	Instrumentation Technician	
		18	01	2.A.43	4.D.02 4.C.20	Holographic Device Unstower	1240	003.281	Instrumentation Technician	
		22	01	2.A.43	1.G.01-18 1.G.01-2 1.G.01-6	Holographic Device Translocator	1239	000.000	General Technical Skill	
		27	01	2.A.43	2.B.06-14 2.C.25 3.I.05-2	Holographic Device Installer	1238	003.181	Electrical Technician	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.2-04-6

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	18	01	2.D.52	4.D.02	VHF Power Unit Unstower	1092	003.281	Instrumentation Technician		
		22	01	2.D.52	4.D.20	VHF Power Unit Translocator	1093	000.000	General Technical Skill		
					1.G.01-18						
		27	01	2.D.52	1.G.01-2	VHF Power Unit Installer	1091	003.181	Electrical Technician		
					1.G.01-6						
		18	01	4.D.14	2.B.06-17	Heat Rejection System Unstower	1142	003.281	Instrumentation Technician		
					4.D.13						
		18	01	4.D.22-1	3.I.05-2	General Purpose Lab Bench Unstower	2252	003.281	Instrumentation Technician		
					1.G.02-14						
		18	01	4.B.01-1	4.D.02	Accident Control System Unstower	2253	003.281	Instrumentation Technician		
					4.D.02						
		18	01	2.D.49	1.G.02-13	Crystal Puller Unstower	1416	003.281	Instrumentation Technician		
					4.D.02						
		22	01	2.D.49	4.D.20	Crystal Puller Translocator	1417	000.000	General Technical Skill		
					1.G.01-18						
		27	01	2.D.40	1.G.01-2	Crystal Puller Installer	1418	003.181	Electrical Technician		
1.G.01-6											
18	01	2.D.56	2.C.25	Heating/Cooling Device Unstower	1253	003.281	Instrumentation Technician				
			2.D.13-1								
22	01	2.D.56	2.D.13-2	Heating/Cooling Device Translocator	1252	000.000	General Technical Skill				
			2.D.29								
27	01	2.D.56	2.D.51	Heating/Cooling Device Installer	1251	003.181	Electrical Technician				
			2.B.06-24								
18	01	2.D.21-1	3.I.05-2	Mixing Unit Unstower	0992	003.281	Instrumentation Technician				
			4.D.02								
18	01	2.D.21-2	4.D.20	Mixing Unit Unstower	0992	003.281	Instrumentation Technician				
			4.D.02								
22	01	2.D.21	4.D.20	Mixing Unit Translocator	0993	000.000	General Technical Skill				
			1.G.01-18								
			1.G.01-6								
			1.G.01-2								
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.2-04-7		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
31	(Continued)	27	01	2.D.21-1	2.B.06-13 2.D.13-1 2.D.13-2 3.I.05-2 2.C.25	Mixing Unit Installer	0991	003.181	Electrical Technician		
		27	01	2.D.21-2	2.B.05-13 2.D.13-1 2.D.13-2 3.I.05-2 2.C.25	Mixing Unit Installer	0991	003.181	Electrical Technician		
		18	01	2.A.17-7	4.D.20 4.D.02	Camera Unstower	0292	003.281	Instrumentation Technician		
		22	01	2.A.17-7	2.B.06-13 2.D.13-1 2.D.13-2 3.I.05-2 2.C.25	Camera Translocator	1226	000.000	General Technical Skill		
		26	01	2.A.17-7	3.I.05-2 2.C.25 2.D.29 2.D.51 2.D.49 1.G.01-7	Camera Installer	0039	003.181	Electrical Technician		
		18	01	2.A.04-3	4.D.02 4.D.20	TV Camera Unstower	0054	003.281	Instrumentation Technician		
		22	01	2.A.04-3	1.G.01-18 1.G.01-2 1.G.01-6	TV Camera Translocator	0026	000.000	General Technical Skill		
		27	01	2.A.04-3	1.G.01-7 2.B.09 2.D.29 2.D.51 2.D.49 2.D.13-1 3.D.13-2	TV Camera Installer	0306	003.181	Electrical Technician		
		18	01	2.D.51	4.D.20 4.D.02	Zone Refiner Unstower	1426	003.281	Instrumentation Technician		
		22	01	2.D.51	1.G.01-18 1.G.01-6 1.G.01-2	Zone Refiner Translocator	1427	000.000	General Technical Skill		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.2-04-8	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth in Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
31	(Continued)	27	01	2.D.51	2.B.06-34 3.I.05-2 2.D.13-1 2.D.13-2	Zone Refiner Installer	1428	003.181	Electrical Technician	
		18	01	2.D.29	4.D.20 4.D.02	Zone Melter Unstower	1406	003.281	Instrumentation Technician	
		22	01	2.D.29	1.G.01-18 1.G.01-6 1.G.01-2	Zone Melter Translocator	1407	000.000	General Technical Skill	
		27	01	2.D.29	2.B.06-35 3.I.05-2 2.D.13-1 2.D.13-2 2.D.52 4.D.13	Zone Melter Installer	1408	003.181	Electrical Technician	
35	Calibrate instruments	08	01	2.D.27	4.C.01	Materials Analysis Equipment Calibrator	1046	710.884	Calibrator	
		08	01	2.D.52	4.C.01	VHF Power Unit Calibrator	1097	710.884	Calibrator	
		08	01	2.D.32	4.C.01	Heating/Positioning Coil Calibrator	1333	710.884	Calibrator	
		08	01	2.A.43	4.C.01	Holographic Device Calibrator	1227	710.884	Calibrator	
37	Define apparatus configuration	11	01	3.I.05-2	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-1 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.17-7 2.A.04-3 2.D.21-1 2.D.21-2 2.D.51 2.D.29 2.D.27 4.D.10 (Continued on next page)	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGES-4.2-04-9

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING			FPE: MS-1 Materials Sciences and Manufacturing in Space			MISSION MODE: A - Shuttle Sortie				
EXPERIMENT AREA: Sortie Lab Payload MS-4			EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)			BASIC FUNCTION: 04 - Experiment Setup				
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
37	(Continued)	13	01	3.I.05-2	(Continued from previous page) 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1 2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-1 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.17-7 2.A.04-3 2.D.21-1 2.D.21-2 2.D.51 2.D.29 2.D.27 4.D.10 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.2-04-10	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie		
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup		
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
38	Define experiment conditions	13	01	3.1.05-2	2.D.49 2.C.25 2.D.56 2.A.18 2.D.13-1 2.D.13-2 2.B.06-2 2.D.15 4.D.13 2.A.17-7 2.A.04-3 2.D.21-1 2.D.21-2 2.D.51 2.D.29 2.D.27 4.D.10 2.A.43 4.D.14 2.D.52 2.B.06-1 4.E.04-1 4.D.22-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic	
46	Install data recording system	18	01	4.D.10	4.D.02 4.D.20	Data Recorder Unstower	1519	003.281	Instrumentation Technician	
		22	01	4.D.10	1.G.01-18 1.G.01-2 1.G.01-6	Data Recorder Translocator	1520	000.000	General Technical Skill	
		27	01	4.D.10	2.B.06-1 2.B.06-2	Data Recorder Installer	1156	003.181	Electrical Technician	
50	Checkout optical instrumentation and measuring devices	03	01	2.D.27	4.D.09	Materials Analysis Equipment Inspector	2269	722.281	Inspector, Systems	
		03	01	2.A.43	4.D.09	Holographic Device Inspector	2270	722.281	Inspector, Systems	
		14	01	2.D.27	4.C.02	Materials Analysis Equipment Tester	1447	003.181	Electrical Technician	
		14	01	2.A.43	2.B.06-14	Holographic Device Tester	1449	003.181	Electrical Technician	
		03	01	2.A.17-7	4.D.09	Camera Inspector	0294	722.281	Inspector, Systems	
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.2-04-11

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 04 - Experiment Setup			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
50	(Continued)	14	01	2.A.17-7	4.D.09	Camera Tester	1448	003.181	Electrical Technician		
		03	01	2.A.04-3	4.D.09	TV Camera Inspector	0079	722.281	Inspector, Systems		
		14	01	2.A.04-3	2.B.09	TV Camera Tester	0633	003.181	Electrical Technician		
					4.C.02						
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/E/M		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-4.2-04-12

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 05 - Experiment Shutdown			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
24	Store crystal for return to earth	26	01	2.C.25	2.F.04	Materials Sample Remover	1357	003.181	Electrical Technician		
		18	01	2.C.25	2.D.19-3 1.G.01-18 1.G.01-2 1.G.01-6	Materials Sample Translocator	1355	000.000	General Technical Skill		
		17	01	2.C.25	2.D.25 4.D.20 4.D.02	Materials Sample Stower	1371	003.281	Instrumentation Technician		
33	Refurbish experiment apparatus	19	01	2.D.13-1	2.C.25 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.13-2	2.C.25 4.D.06	Environmental Chamber Cleaner	1062	003.281	Instrumentation Technician		
		19	01	2.D.29	2.C.25 4.D.06	Zone Melter Cleaner	1412	003.281	Instrumentation Technician		
		19	01	2.D.51	2.C.25 4.D.06	Zone Refiner Cleaner	1432	003.281	Instrumentation Technician		
		19	01	2.D.27	2.C.25 4.D.06	Materials Analysis Equipment Cleaner	1048	003.281	Instrumentation Technician		
		19	01	2.D.40	2.C.25 4.D.06	Crystal Puller Cleaner	1422	003.281	Instrumentation Technician		
		19	01	2.D.56	2.C.25 4.D.06	Heating/Cooling Device Cleaner	2306	003.281	Instrumentation Technician		
		19	01	2.D.21-1	2.C.25 4.D.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician		
		19	01	2.D.21-2	2.C.25 4.C.06	Mixing Unit Cleaner	0998	003.281	Instrumentation Technician		
41	Communicate experiment results to earth	05	01	4.A.02	3.I.05-2 2.C.25	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.05-2	4.A.02 2.C.25	Crystal Growth Research Coordinator	2298	022.081	Chemist, Inorganic		
44	Develop film; make prints	06	01	4.B.08	2.A.27-6	Film Processor	0328	976.782	Film Processor	MS-3	
		06	01	4.D.19	2.A.27-6	Film Processor	0328	976.782	Film Processor		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.2-05-1		



## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 06 - Experiment Conduct			

CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE	
1	Observe solid-liquid interface (crystal pulling)	02	01	2.C.25	3.I.05-2 2.D.49 2.B.09 2.A.04-3 2.D.13-1 2.D.13-2	Crystal Growth Observer	1368	022.081	Chemist, Inorganic	
2	Determine characteristics of solid-liquid interface	04	01	2.C.25	3.I.05-2 2.B.09 2.A.04-3 2.A.18 2.D.13-1 2.D.13-2	Crystal Growth Characteristics Determiner	1444	022.081	Chemist, Inorganic	
3	Adjust furnace temperature set-point	15	01	2.B.06-35	2.D.29 2.C.25 3.I.05-2 5.D.	Zone Melter Control Actuator	1405	022.081	Chemist, Inorganic	
		15	01	2.B.06-34	2.D.51 2.C.25 3.I.05-2 5.D.	Zone Refiner Control Actuator	1425	022.081	Chemist, Inorganic	
4	Interpret strip-chart records (temperature)	02	01	3.I.05-2	2.F.02-5 2.C.25 4.D.10 5.D.	Crystal Growth Data Observer	2333	022.081	Chemist, Inorganic	
		11	01	3.I.05-2	2.F.02-5 2.C.25 4.D.10 5.D.	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic	
		04	01	3.I.05-2	2.F.02-5 2.C.25 4.D.10 5.D.	Crystal Growth Data Interpreter	2334	022.081	Chemist, Inorganic	

REVISION NO:	REVISION DATE:	PREPARED BY: GRH/EMW	APPROVED BY: GRH	SERIES MS-1-A	PAGE 4S-4.2-06-1
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## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
6	Prepare section of pulled crystal	27	01	2.C.25	2.D.27-2 3.I.05-2	Crystal Sample Installer	2335	022.081	Chemist, Inorganic		
		10	01	2.D.27-2	2.C.25 3.I.05-2	Materials Analysis Equipment Controller	1049	022.081	Chemist, Inorganic		
7	Analyze crystal homogeneity under phase-contrast microscope	27	01	2.C.25	2.A.18-1 3.I.05-2	Crystal Sample Installer	2335	022.081	Chemist, Inorganic		
		10	01	2.A.18-1	2.D.27 2.C.25 3.I.05-2	Microscope Controller					
		12	01	2.C.25	2.A.18-1 3.I.05-2 2.D.27	Crystal Growth Structure Analyzer	1445	022.081	Chemist, Inorganic		
8	Photograph solid-liquid interface with TV camera	15	01	2.B.09	2.A.04-3 2.C.25 2.A.18	TV Camera Control Actuator	0899	003.281	Instrumentation Technician		
11	Observe crystal growth through microscope (floating zone)	02	01	2.C.25	2.A.18 3.I.05-2 2.D.29 2.D.56	Crystal Growth Observer	1368	022.081	Chemist, Inorganic		
12	Take 16mm movies of crystal growth	15	01	2.A.17-7	2.C.25 2.A.18	Camera Control Actuator	0245	003.281	Instrumentation Technician		
14	Activate zone heating	15	01	2.B.06-35	2.D.29 2.C.25 3.I.05-2	Zone Melter Control Actuator	1405	003.281	Instrumentation Technician		
15	Move heating zone along crystal bar	10	01	2.B.06-35	2.D.29 2.C.25 3.I.05-2	Zone Melter Controller	2337	022.081 003.281	Chemist, Inorganic Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A			PAGE MS-4.2-06-2

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
16	Observe temperature-monitoring devices	01	01	2.B.06-35	2.D.29 2.C.25 5.D.	Zone Melter Operation Monitor	1413	022.081 003.281	Chemist, Inorganic Instrumentation Technician		
		01	01	2.B.06-34	2.D.51 2.C.25 5.D.	Zone Refiner Operation Monitor	1433	022.081 003.281	Chemist, Inorganic Instrumentation Technician		
		01	01	2.B.06-18	2.D.56 2.C.25 2.A.18 5.D.	Heating/Cooling Device Operation Monitor	1241	003.281	Instrumentation Technician		
		01	01	3.I.05-2	2.D.29 2.B.06-35 2.D.51 2.B.06-34 2.D.56 2.B.06-18 5.D. 2.C.25	Crystal Growth Process Monitor	1512	022.081	Chemist, Inorganic		
36	Schedule experiment runs	13	01	3.I.05-2	2.C.25 2.B.06-2 6.A.02 2.B.06-1	Crystal Growth Research Planner	1367	022.081	Chemist, Inorganic		
39	Monitor experiment performance	01	01	3.I.05-2	2.C.25 2.B.06-2 2.B.09	Crystal Growth Research Monitor	2303	003.281	Instrumentation Technician		
		01	01	2.B.06-6	2.D.13-2 2.D.13-1	Environmental Chamber Operation Monitor	1141	003.281	Instrumentation Technician		
		01	01	2.B.06-7	2.D.15	Atmosphere Supply/Control System Operation Monitor	1129	003.281	Instrumentation Technician		
		01	01	2.B.06-9	4.D.13 2.B.06-17 2.D.52	Power Conditioning/Distribution System Operation Monitor	1136	003.281	Instrumentation Technician		
		01	01	2.B.06-34	2.D.51 2.D.13-1 2.D.13-2	Zone Refiner Operation Monitor	1433	022.081 003.281	Chemist, Inorganic Instrumentation Technician		
		01	01	2.B.06-17	2.D.52 4.D.13 2.B.06-9	VHF Power Unit Operation Monitor	1099	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGEMS-4.2-05-3		

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 06 Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
39	(Continued)	01	01	2.B.06-2	2.B.06-1	Computer Operation Monitor	1055	003.281	Instrumentation Technician		
		01	01	1.G.02-13	4.E.04-1	Accident Control System Operation Monitor	2264	003.281	Instrumentation Technician		
		01	01	2.B.06-35	2.D.29 2.D.13-1 2.D.13-2	Zone Melter Operation Monitor	1413	003.281 022.081	Instrumentation Technician Chemist, Inorganic		
		01	01	1.G.02-14	4.D.14	Heat Rejection System Operation Monitor	1146	003.281	Instrumentation Technician		
		01	01	2.B.06-24	2.D.49 2.D.13-1 2.D.13-2 2.D.52	Crystal Puller Operation Monitor	1423	003.281	Instrumentation Technician		
		01	01	2.B.06-14	2.A.43	Holographic Device Operation Monitor	1228	003.281	Instrumentation Technician		
		01	01	2.B.06-18	2.D.56	Heating/Cooling Device Operation Monitor	1241	003.281	Instrumentation Technician		
		01	01	2.B.06-13	2.D.21-1 2.D.21-2 2.C.25	Mixing Unit Operation Monitor	0999	003.281	Instrumentation Technician		
		01	01	2.B.09	2.A.04-3	TV Camera Operation Monitor	1345	003.281	Instrumentation Technician		
		01	01	2.B.09	2.A.04-3	TV Camera Operation Monitor	1345	003.281	Instrumentation Technician		
40	Evaluate experiment results	11	01	3.I.05-2	2.C.25 2.D.27	Crystal Growth Research Evaluator	1394	022.081	Chemist, Inorganic		
41	Communicate experiment results to earth	05	01	4.A.02	3.I.05-2 2.C.25 2.D.51 2.D.29 2.D.49 2.D.13-1 2.D.13-2	Radio Communicator	0206	003.187	Radio Engineer		
		05	01	3.I.05-2	4.A.02 2.C.25 2.D.51 2.D.29 2.D.49 2.D.13-1 2.D.13-2 2.D.21-1 2.D.21-2	Crystal Growth Research Coordinator	2298	022.081	Chemist, Inorganic		
REVISION NO:		REVISION DATE:			PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.2-06-4	

## FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-3)				BASIC FUNCTION: 06 - Experiment Conduct			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
47	Operate measuring, recording, and transmission systems & equipment	15	01	2.A.17-7	2.C.25	Camera Control Actuator	0245	003.281	Instrumentation Technician		
		15	01	2.B.09	2.A.04-3	TV Camera Control Actuator	0899	003.281	Instrumentation Technician		
		15	01	2.B.06-14	2.C.25	Holographic Device Control Actuator	1229	003.281	Instrumentation Technician		
					2.A.43						
		05	01	4.A.02	3.I.05-2	Radio Communicator	0206	003.281	Instrumentation Technician		
		15	01	1.G.02-12	4.A.01	Telemetry Control Actuator	0662	003.281	Instrumentation Technician		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGEMS-4.2-05-5	

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing in Space				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	Repair experiment equipment	07	01	2.B.06-6	2.D.13-1 2.D.13-2 4.C.02	Environmental Chamber Fault Identifier	1066	828.281	Electronics Mechanic		
		28	01	2.D.13-1	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		29	01	2.D.13-2	4.D.18	Environmental Chamber Repairer	1065	828.281	Electronics Mechanic		
		07	01	2.B.06-5	4.D.22-1 4.C.02	General Purpose Lab Bench Fault Identifier	2265	828.281	Electronics Mechanic		
		28	01	4.D.22-1	4.D.18	General Purpose Lab Bench Repairer	2266	828.281	Electronics Mechanic		
		07	01	2.B.06-2	4.C.02	Instrumentation and Control Center Fault Identifier	2250	828.281	Electronics Mechanic		
		28	01	2.B.06-2	4.D.18	Instrumentation and Control Center Repairer	2251	828.281	Electronics Mechanic		
		07	01	2.B.06-7	2.D.15 4.C.02	Atmosphere Supply and Control System Fault Identifier	1133	828.281	Electronics Mechanic		
		28	01	2.D.15	4.D.18	Atmosphere Supply and Control System Repairer	1132	828.281	Electronics Mechanic		
		07	01	2.B.06-9	4.D.13 4.C.02 2.B.06-17	Power Conditioning/Distribution System Fault Identifier	1140	828.281	Electronics Mechanic		
		28	01	4.D.13	4.D.18	Power Conditioning/Distribution System Repairer	1139	828.281	Electronics Mechanic		
		07	01	2.B.06-14	2.A.43 4.C.02 4.C.01 4.C.07	Holographic Device Fault Identifier	1233	828.281	Electronics Mechanic		
		28	01	2.A.43	4.D.18	Holographic Device Repairer	1232	828.281	Electronics Mechanic		
		07	01	2.B.06-17	2.D.52 4.C.02 2.B.06-9	VHF Power Unit Fault Identifier	1103	828.281	Electronics Mechanic		
		28	01	2.D.52	4.D.18	VHF Power Unit Repairer	1102	828.281	Electronics Mechanic		
		07	01	2.B.06-2	2.B.06-1 4.C.02	Computer Fault Identifier	0523	828.281	Electronics Mechanic		
		28	01	2.B.06-1	4.D.18	Computer Repairer	0540	828.281	Electronics Mechanic		
		07	01	1.G.02-14	4.D.14 4.C.02	Heat Rejection System Fault Identifier	1150	828.281	Electronics Mechanic		
		28	01	4.D.14	4.D.18	Heat Rejection System Repairer	1149	828.281	Electronics Mechanic		
		07	01	1.G.02-13	4.E.04-1 4.C.02	Accident Control System Fault Identifier	2267	828.281	Electronics Mechanic		
		28	01	4.E.04-1	4.D.18 4.D.18	Accident Control System Repairer	2268	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A	PAGE MS-4.2-10-1		

# FLIGHT EXPERIMENT TASK/SKILL REQUIREMENTS

DISCIPLINE: MATERIALS SCIENCES AND MANUFACTURING				FPE: MS-1 Materials Sciences and Manufacturing				MISSION MODE: A - Shuttle Sortie			
EXPERIMENT AREA: Sortie Lab Payload MS-4				EXPERIMENT: 4.0 Small and Low Temperature Experiments 4.2 Crystal Growth from Melts (See Note MS-8)				BASIC FUNCTION: 10 - Unscheduled Maintenance			
CREW TASK STATEMENT		CREW FUNCT. NO.	OPER. ENVIR. NO.	TASK DEPENDENCY NO.		TASK - SKILL		PRIMARY OCCUPATIONAL SKILL		REFERENCE NOTE NO.	
NO.	DESCRIPTION			PRIMARY	SECONDARY	TITLE	NO.	NO.	TITLE		
48	(Continued)	07	01	2.B.06-13	2.D.21-1 2.D.21-2 4.C.02	Mixing Unit Fault Identifier	1003	828.281	Electronics Mechanic		
		28	01	2.D.21-1	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		28	01	2.D.21-2	4.D.18	Mixing Unit Repairer	1002	828.281	Electronics Mechanic		
		07	01	2.B.06-24	2.D.49 4.C.02	Crystal Puller Fault Identifier	1442	828.281	Electronics Mechanic		
		28	01	2.D.49	4.D.18	Crystal Puller Repairer	1443	828.281	Electronics Mechanic		
		07	01	2.B.06-18	2.D.56 4.C.02	Heating/Cooling Device Fault Identifier	1246	828.281	Electronics Mechanic		
		28	01	2.D.56	4.D.18	Heating/Cooling Device Repairer	1245	828.281	Electronics Mechanic		
		07	01	2.B.06-34	2.D.51 4.C.02	Zone Refiner Fault Identifier	1435	828.281	Electronics Mechanic		
		28	01	2.D.51	4.D.18	Zone Refiner Repairer	1437	828.281	Electronics Mechanic		
		07	01	2.B.06-35	2.D.29 4.C.02	Zone Melter Fault Identifier	1439	828.281	Electronics Mechanic		
		28	01	2.D.29	4.D.18	Zone Melter Repairer	1440	828.281	Electronics Mechanic		
		07	01	2.A.17-7	4.C.02 4.C.07	Camera Fault Identifier	0886	828.281	Electronics Mechanic		
		28	01	2.A.17-7	4.D.18	Camera Repairer	1195	828.281	Electronics Mechanic		
		07	01	2.B.09	2.A.04-3 4.C.02 4.C.07	TV Camera Fault Identifier	0689	828.281	Electronics Mechanic		
		28	01	2.A.04-3	4.D.18	TV Camera Repairer	0690	828.281	Electronics Mechanic		
REVISION NO:		REVISION DATE:		PREPARED BY: GRH/EMW		APPROVED BY: GRH		SERIES MS-1-A		PAGE MS-4.2-10-2	